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Drake, F. R., and Ebaugh, F. G.: Ann. New York Acad. Sc. *61*:198 (April 15) 1955.

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Drake, F. R., and Ebaugh, F. G.: Ann. New York Acad. Sc. *61*:198 (April 15) 1955.

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Harris, R.: Ann. New York Acad. Sc. *59*:95 (April 30) 1954.

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JOURNAL OF THE AMERICAN MEDICAL WOMEN'S ASSOCIATION is published monthly by the American Medical Women's Association, Inc., at 136 4th Ave., North, Nashville 3, Tenn. Entered as second class matter at the Post Office at Nashville, Tennessee, under the Act of August 24, 1912. Acceptance for mailing at special rates of postage provided for in Section 1102, Act of October 8, 1917, and authorized July 15, 1918.

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Subscription, $5.00 per year; $1.00 single copy.
EDITORIAL AND ADVERTISING OFFICE, Journal of the American Medical Women's Association, 1790 Broadway, New York 19, N. Y. Telephone Judson 6-8683. Advertising Manager, Joseph Bourgholtzer, Box 281, Suffern, N. Y. Telephone Cragmere (N.J.) 8-3356.

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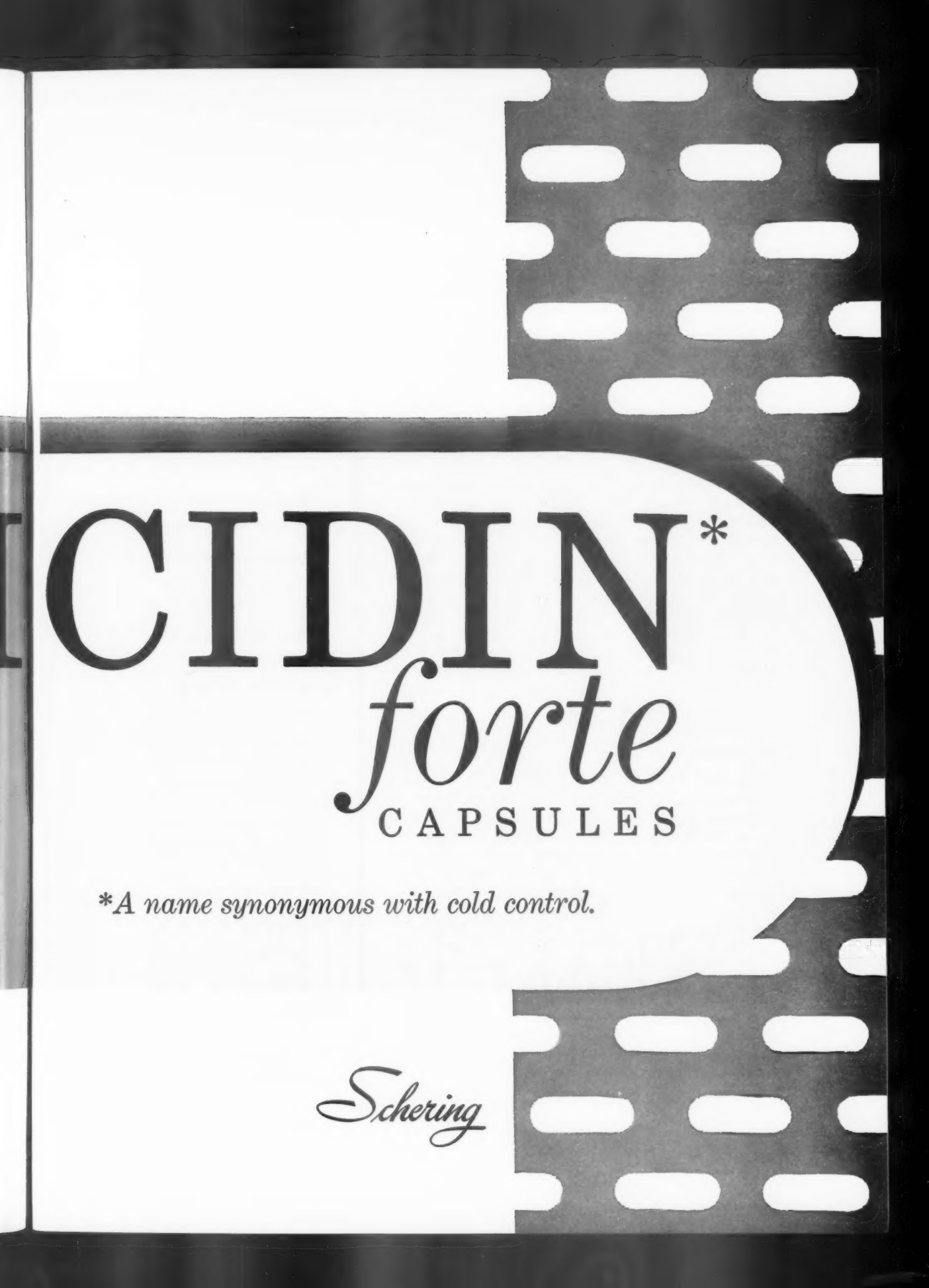
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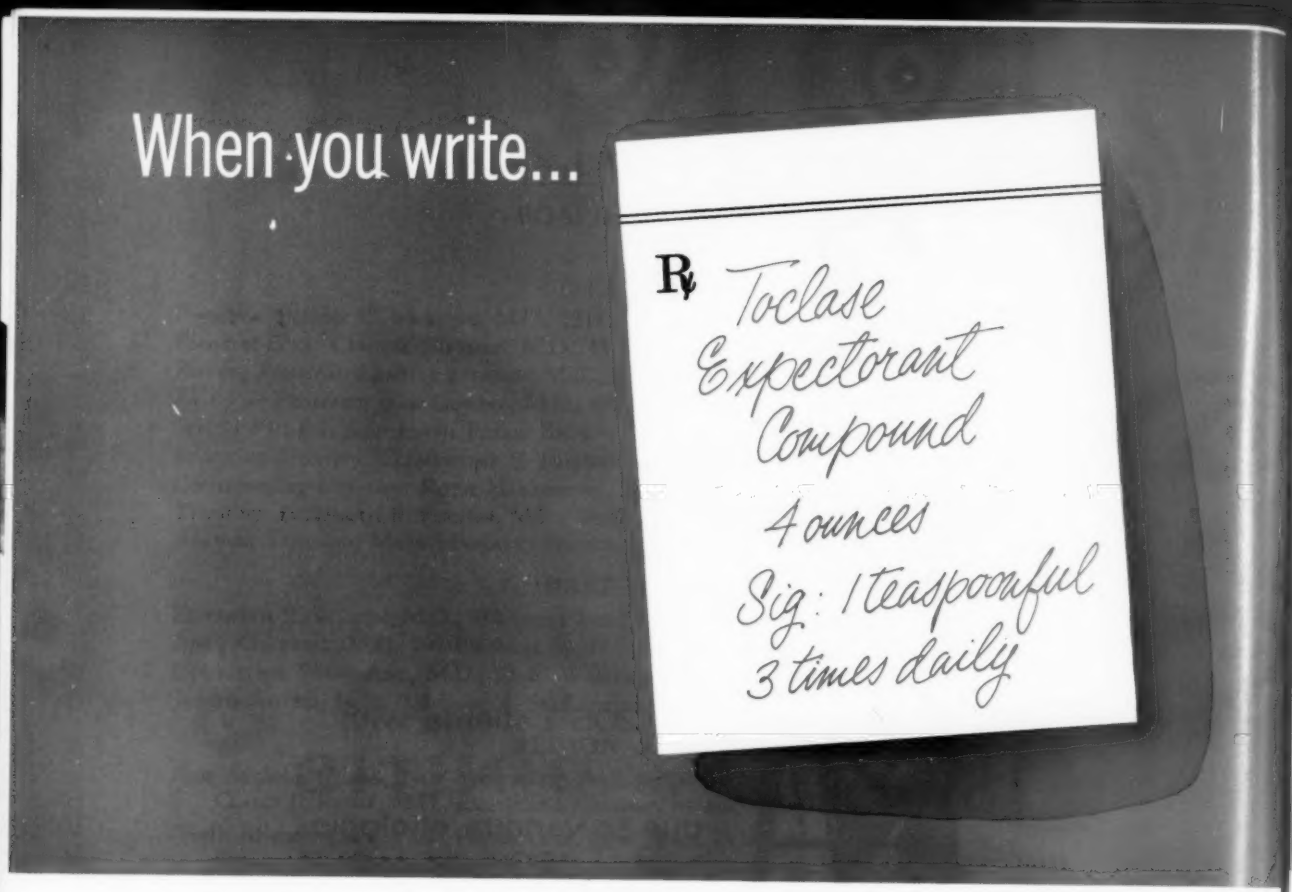

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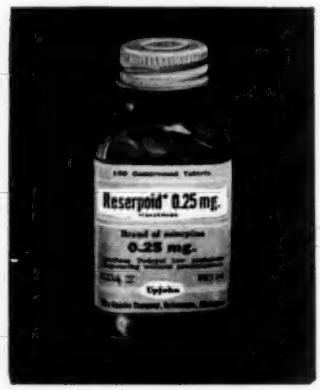

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(Continued on page 18)

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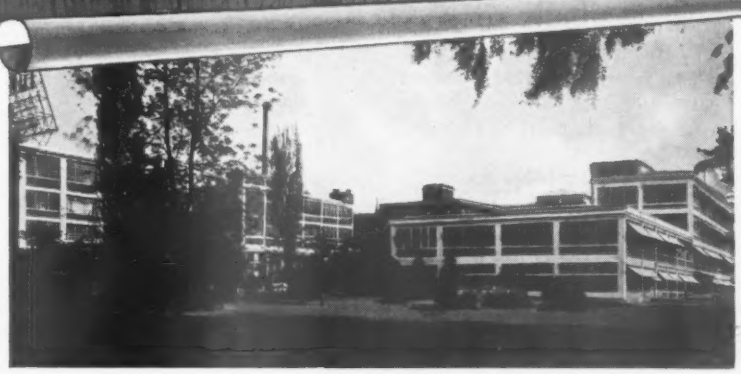

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(Continued on page 22)

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National Corresponding Secretary to the Medical Women's International Association:

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Name..... Address.....
City..... State.....
Single.....Married.....Widow.....Children.....
College..... Graduation year.....
Graduate study..... Further degrees.....
What have you practiced?..... Where?.....
Organizations to which you belong..... Dates.....
Offices held.....
Institutions with which you are, or have been associated.....
.....
Hospital staff.....
Specialty.....Further study.....
Research.....
Other types of professional activities.....
Special clinical projects.....
Publications.....
.....
Honors.....
Civic activities.....

PLEASE COMPLETE AND RETURN TO: Ida J. Draeger, *Librarian,* Woman's Medical College of Pa., Henry and Abbottsford, Philadelphia 29, Pa.

Date..... Gulielma Fell Alsop, *Chairman,* Historical Committee

The American Medical Women's Assn.

Branch Thirty-Nine, Boston

cordially invites

All Women Physicians Attending

The A.M.A. Clinical Meeting

to a Luncheon,

November 30, 1955, 12:30 P.M.

at the Women's City Club of Boston

* * * *

Please complete and return the reservation below as soon as possible.

Marian W. Perry, M.D.
88 Scotland Road
Reading 3, Mass.

I will attend the AMWA luncheon meeting, November 30, 1955, at the Women's City Club, 12:30 p.m.

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(Physician's Name)

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(Address)

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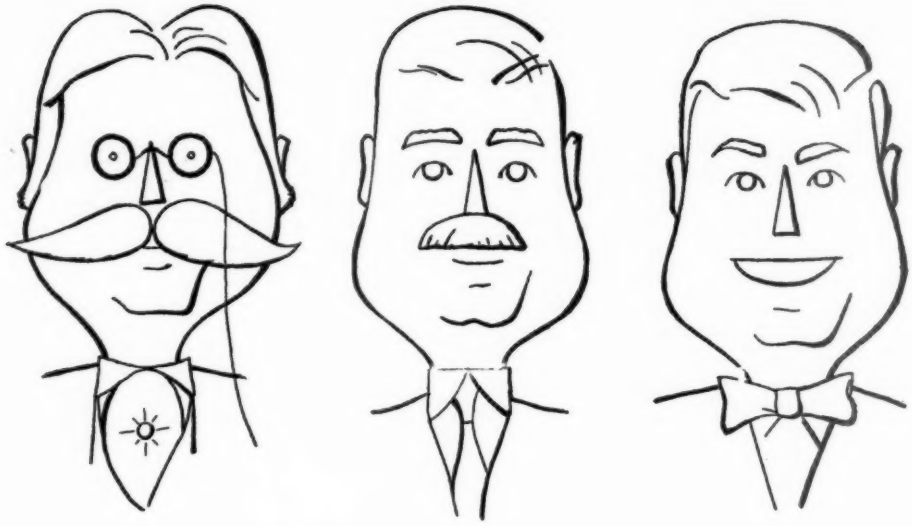

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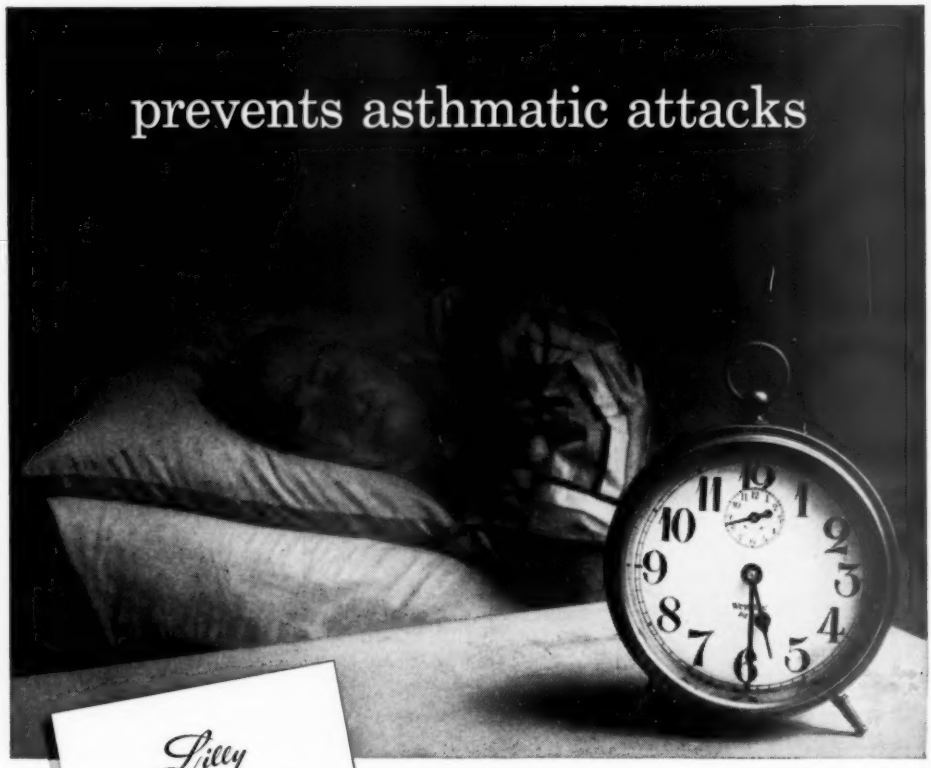

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Journal of the
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VOLUME 10 NOVEMBER 1955 NUMBER 11

Cerebral Chemistry and Convulsions

SPECULATION ON BIOCHEMICAL CAUSES OF EPILEPSY

Eileen Loraine Ginter

EPILEPSY IS A DISEASE as old as the human race, but there is still much to be learned about its causes. The fact that epilepsy may be symptomatic of other conditions has resulted in much confusion. Epileptic seizures have been traced to brain tumors, anatomic irregularities in the cerebral cortex caused by injury, infectious diseases such as syphilis, and to periods of cerebral anoxia. However, the mystery of "idiopathic" epilepsy is yet to be solved.

The classic definition of epilepsy given by Jackson[1] is as follows: "Epilepsy is the name for occasional, sudden, excessive, rapid, and local discharges of the gray matter." These abnormal electrical manifestations then produce outward symptoms, varying according to which part of the cortex is stimulated.

A spectrum of chemical factors seems to be involved. They extend from the physiologic state of the body as a whole, through intracranial conditions, to the metabolism of the neuron itself. These factors include the degree of hydration of the body, the electrolyte balance, the concentration of various metabolites in the blood, and the partial pressures of oxygen and carbon dioxide. These conditions may then modify, or be modified by, the permeability of the blood-brain barrier, the degree of constriction or dilation of cerebral vessels, and the electric threshold within the brain tissue. Finally, the neuron will react differently, depending on which substances actually enter into chemical combination with its enzymes or other constituents. The direction of metabolism may also be determined by intracellular factors, including the genes. These various factors will be examined in this paper, and a speculative explanation of the biochemistry of epilepsy will be attempted.

Physiologic Status of the Body. The degree of hydration of the body is implicated in the production of seizures. Drastic restriction of water intake has been used fairly successfully in the control of epilepsy.[2] However, the electrolyte composition of the brain may be a more important factor than the general degree of hydration.[3,4,5] The potassium concentration, especially as it is affected by desoxycorticosterone, is of prime importance.[2,6,7]

Carbohydrate metabolism seems related directly to the appearance of convulsions, as, for example, in the case of insulin shock.[8] Glucose is the primary metabolite for cerebral tissues, as shown by in vitro experiments as well as by its ability to reverse abnormal electrical discharges in the brains of hypoglycemic animals.[9] Pyruvate and lactate are used to some extent,[8] as are mannose and maltose.[9]

Glutamic acid is the amino acid of importance in cerebral metabolism.[10] Injected intravenously, it has caused a return to consciousness of patients in hypoglycemic coma.[10,11] Its primary action is probably the metabolism of ammonia when the brain tissue is burning non-carbohydrate substances.[12] It may or may not have a beneficial effect in preventing epileptic seizures.[10,13]

Fasting has long been used in the treatment of epilepsy.[1] More recently, a high fat diet has been

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substituted for starvation as an easier way to produce the desired ketosis. Although formerly it was generally accepted that the acidosis accompanying a ketogenic diet was the factor which prevented seizures, it is now thought that acetoacetic acid may be responsible. Certainly, it is the one fat-derived substance which may be metabolized in the brain.[14]

The importance of blood pH is also indicated by the fact that hyperventilation, which causes a slight alkalosis, may produce, in susceptible persons, convulsions, or at least epileptiform brain waves. It may be that a physico-chemical regulating mechanism is impaired in the brains of epileptics, as shown by the differences in blood CO_2 in normal persons and epileptic patients.[15]

Carbon dioxide is a known dilator of cerebral vessels and it may also directly affect the electrical properties of the brain.[4,16] The use of carbon dioxide inhalation in the treatment of epilepsy[17] and other central nervous system disorders[18] has been reported. More must be learned before its action can be explained.

Oxygen tension seems to be the real limiting factor in brain metabolism, regardless of the effects of carbon dioxide. Many cases of epilepsy developing during childhood may be traced to a difficult delivery and varying periods of neonatal anoxia.[19] Histotoxic anoxia, caused by poisoning the cytochrome system with cyanide or carbon monoxide, may also produce convulsions.

Oxygen at high pressures is as damaging as anoxia to brain tissues, indicated by abnormalities in the electro-encephalogram, as well as by actual convulsions.[20] A hydrogen carrier preceding the cytochrome system may be damaged[21] and this probably is an enzyme with a sulfhydryl group.[20]

Intracranial Mechanisms Affecting Brain Metabolism. Blood flow is important because it determines the amounts of various substances reaching the brain. Carbon dioxide is the major regulator of flow,[22] although other chemicals may also cause either dilation or constriction of the cerebral vessels. The relationship between cerebral blood flow and epileptic seizures has been investigated. There is an increased flow during convulsions, but not before a seizure occurs.[23] Penfield[24] reports that there may be a focal cessation of visible pulsation in the cerebral arteries during a fit. This is followed by postconvulsive hyperemia, then arterial spasm.

The extent to which a substance actually enters the tissues of the brain depends on the permeability of the blood-brain barrier. This may be altered by anoxia, alkalosis, trauma, and chemicals.[25] Various dyes have been used to prevent convulsions because of their effect on the permeability of the blood-brain barrier.[26,27] Also, cholesterol and cortisone have an effect on permeability.[3,28]

Acetylcholine and Electrical Discharge. It has now been fairly well established that acetylcholine acts as the chemical mediator of electrical transmission in the cerebral cortex as well as peripherally. There is some evidence for the existence of other excitatory or inhibitory substances in the central nervous system,[29] but none have been definitely characterized. The effect of acetylcholine in the brain resembles its action in the sympathetic ganglion or myoneural junction more than it does that in the parasympathetic end organ.[30]

Local application of acetylcholine to the cerebral cortex has been shown to affect the electro-encephalogram, especially if the cortex is pre-treated with prostigmin.[30,31,32] This is used to counteract the action of cholinesterase which normally destroys acetylcholine rapidly.[33] Intracisternal infusion of acetylcholine will also produce convulsions.[32] However, intravenous administration has only an indirect effect. The convulsions produced by this method are probably caused by brain anoxia resulting from the slowing of the heart.[34] Slices from focal epileptogenic tissue are not significantly different from those of normal cortex in respect to total acetylcholine content or in rate of synthesis of free acetylcholine.[35] However, the epileptogenic tissue showed a tendency to have a high cholinesterase activity and failed to produce bound acetylcholine. Thus, an abnormality in the removal of acetylcholine, rather than in its production, seems to be the more important factor in the genesis of convulsive seizures.

Intraneuronal Metabolism. The difference in metabolic requirements of brain cells from those of other tissues is undoubtedly related to the metabolism of acetylcholine and the transmission of electrical impulses. The connecting link between acetylcholine formation and the general energy-producing mechanisms of the cell is acetyl-coenzyme A, also called "active acetate" or acetyle-Co A (Fig. 1). Acetyl-Co A thus enters into the formation of acetylcholine. It also may combine with oxalacetic acid and be metabolized via the citric acid cycle.[36] As is shown in the diagram of Nachmansohn (Fig. 2), it is in the formation of acetyl-Co A that high energy phosphate bonds are so important, as are magnesium and potassium ions.[37]

The measurement of substances in cerebral blood or tissue, as phosphocreatine, phosphopyruvate, glucose, or lactate, may give an indication of the general metabolic activity of brain tissue, but will not show whether the acetyl-Co A was used mainly for the synthesis of acetylcholine or was metabolized via the citric acid cycle. Experiments have shown that generally phosphocreatine and glucose phosphate con-

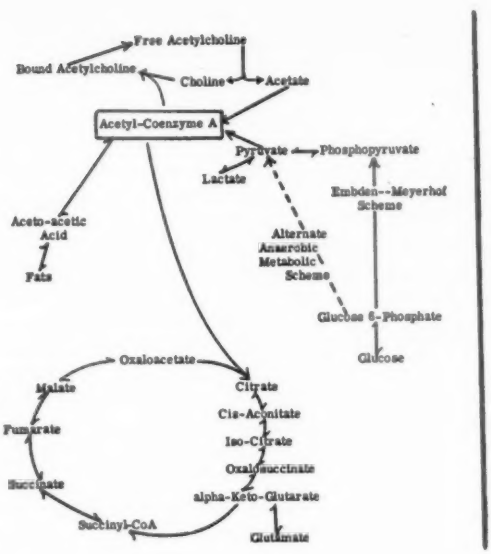

FIG. 1

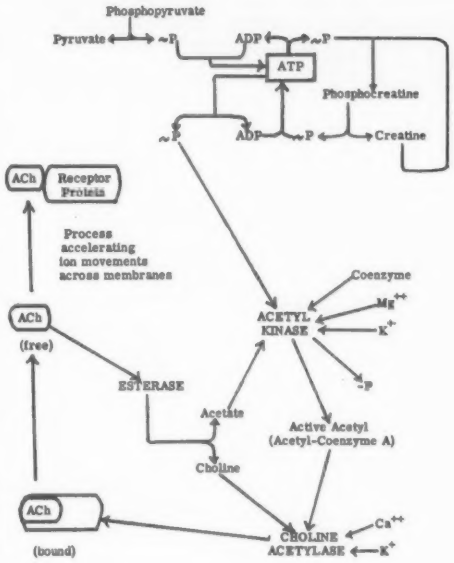

FIG. 2

Fig. 1. Role of acetyl-Co A in cerebral metabolism. Fig. 2. The enzymes and co-factors concerned with acetylcholine metabolism (modified from Nachmansohn, D., Advances Enz, 12: 259, 1951).

centrations decrease during convulsions, while inorganic phosphate and lactic acid concentrations increase.[38,39] However, there have been differences in reports of the changes in ATP and ADP content and in oxygen utilization.[38,39] In his review on the action of acetylcholine, Feldburg[40] explains some of these observations. He states that there is not necessarily a relationship between the rate of acetylcholine synthesis and the formation of free phosphate. Furthermore, although ATP is necessary for a maximum rate of acetylcholine synthesis, the addition of citric acid or glutamic acid to a boiled saline extract of brain tissue could promote the synthesis of acetylcholine, either aerobically or anaerobically, and without the presence of ATP. He also mentions that a large concentration of glucose may inhibit acetylcholine synthesis. The optimum concentration for stimulation of synthesis lies far below the normal blood sugar level. This may be important in explaining the convulsions of insulin hypoglycemia, especially according to the hypothesis of a "glucose brake."[29]

Calcium and potassium ions have already been mentioned as necessary for the formation of acetyl-Co A or in the further metabolism of acetylcholine. Calcium and magnesium ions are also important because of their effect on membrane permeability. Magnesium ions also probably cause a direct dilation of cerebral vessels and reduce the number of subunits responding to a nerve volley.[41] The use of soluble magnesium salts as anticonvulsant medication[42] may now perhaps be explained by their counteracting the hypersynchronization of electrical activity characteristic of epilepsy.

Steroid hormones, especially desoxycorticosterone, have been shown to have an effect on epileptic seizures.[43,44] As mentioned previously, this may be caused by the regulation of potassium concentration[2,7] or by an alteration of the metabolism of carbohydrate. Gonadal steroids are also important in the regulation of cerebral metabolism. In fact, Gordon and his associates[45] have postulated an alternative metabolic pathway from glucose-6-phosphate through phosphogluconate and pentose phosphate to pyruvate, which is thought to operate when certain steroids are lacking (Fig. 3). The relationship of steroids to the electron transport system through the dehydrogenases and the cytochrome system is also shown. These factors would only have an indirect effect on epilepsy, yet they might help to explain the fact that seizures sometimes first appear at puberty and are often related to the menstrual cycle.[19] The pituitary hormone ACTH has been found to have extra-adrenal effects upon cerebral metabolism, such

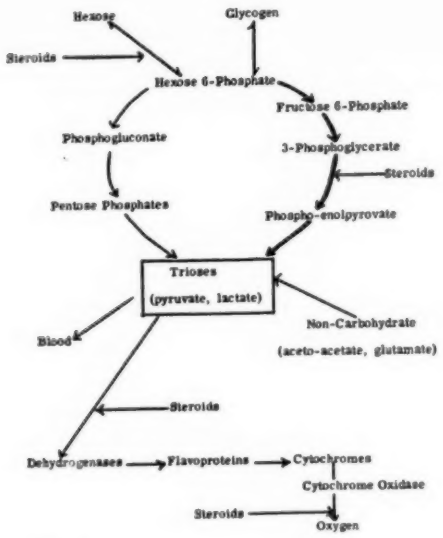

FIG. 3

Role of steroids in cerebral metabolism (modified from Gordon, G., Ann. N.Y. Acad. Sc. 54: 575, 1951).

as increasing the specific activity of phosphate,[46] or increasing the electrical activity of the brain as well as the concentration of acetylcholine and the ammonium ion in cerebral tissue.[47] Hormones certainly are directly concerned with cerebral metabolism and probably are implicated in the actual production of epileptic seizures.

The importance of certain low molecular weight metabolites in the occurrence of seizures has been indicated. Glutamic acid is especially necessary in the regulation of the concentration of the ammonium ion since this ion is a known inhibitor of choline acetylase.[12] The increased use of non-carbohydrate material, which may occur when glucose concentration is low, certainly would require the deamination, transamination, and amidation functions of the glutamate system. Glutamic acid also lowers the permeability of the cell to potassium ions and thus directly affects electrical transmission. The addition of l-glutamate to brain preparations will increase the rate of synthesis of acetylcholine because of its function in the formation of coenzyme A.[12] The effectiveness of succinate and citrate in promoting the synthesis of acetylcholine[37] is probably owing to their ability to act as acetate donors and thus help form acetyl-Co A from acetate and coenzyme A.[36] Similarly, the effectiveness of a high fat diet in counteracting epileptic attacks may be related to the ability of the acetoacetic acid formed to produce acetyl–Co A.[36] (These relationships are shown in Fig. 1.)

The various enzymes within the neuron must function properly to maintain normal metabolism. The enzymes cholinesterase and choline acetylase certainly are important because of their action in regulating the amount of free acetylcholine present. Those enzymes concerned with the formation of acetyl-Co A, and the formation and transfer of high energy phosphate bonds, are concerned with the energy production of the cell and thus indirectly with electrical discharge. However, the enzymes which catalyze the electron transfer of oxidation play no direct role in the synthesis, action, or breakdown of acetylcholine. In fact, it appears that acetylcholine synthesis occurs better under anaerobic conditions than in the presence of oxygen.[37] This results from the action of the sulfhydryl groups on both choline acetylase and coenzyme A, the oxidation of which would inhibit their metabolic function. The convulsions caused by oxygen at high pressures are probably caused by the oxidation of these important enzymes.

Enzymes, hormones, and various metabolites thus are concerned with cerebral metabolism and may be implicated in the production of epilepsy. There must first be a proper functioning of the neuron, then there must be the correct balance of extracellular conditions, so that the substrates needed for metabolism are readily available. If we assume that idiopathic epilepsy is caused by some abnormal functioning of the cerebral neuron, whose action may be modified by the extracellular chemical environment, then the question arises as to the basic causes behind the altered cellular metabolism.

Possible Causes of Altered Neuron Function. For centuries it was thought that there may be some connection between heredity and epilepsy.[1] However, there is no conclusive evidence that idiopathic epilepsy may result from inherent metabolic defects carried on transmissible genes. Other members of the family of an epileptic patient may have abnormal electro-encephalograms.[19] It has also been estimated that an average of 15 percent to 20 percent of the population have these abnormal brain waves. Since the incidence of epilepsy in the general population, including that of known causes such as concussions and tumors, is only about 0.5 percent, one wonders why epilepsy occurs in some people and not in others. Certainly we must look to a mechanism other than simple Mendelian heredity.

Birth injury ranks high in the list of known causes of epilepsy.[19] Often there is definite pathologic evidence, such as microgyri or glial scars. There may be a history of a difficult delivery contributing to a long

period of anoxia, which may or may not cause detectable changes in the brain tissue.[19] However, all difficult deliveries do not result in the development of seizures, either immediately or later in life. There must be another factor to consider.

A recent analysis of the pathologic effects of various chemical agents on neuroblasts, neonatal neurons, and adult neurons[48] may be applicable. The differences in the stages of development were shown by the pathologic effects caused by various metabolic inhibitors. The neuroblast was shown to be primarily concerned with protein synthesis, while the neonatal neuron had the anaerobic oxidation system most developed, and the adult neuron was chiefly concerned with aerobic oxidation. The reasons for the changing metabolism are as obscure as growth itself, but perhaps the theory of the development of adaptive enzymes as the substrate of the cell changes can be applied here.

Could prenatal or neonatal disturbances in either the oxygen or foodstuff supply prevent the development of adaptive enzymes in the neuroblast? Could the occurrence of convulsions early in the first week after birth[19] reflect the absence of certain enzymes which develop later? Yet these enzymes might have slight modifications in their structure which will make them susceptible to later conditions, such as the changing hormone constituents in the blood. Then the second appearance of convulsions would occur, as is often the case, years later. The fever of early childhood, whose attendant convulsions are sometimes the prelude to later epilepsy,[19] may also play a role in this process. Perhaps the protein constituents of certain enzymes are more susceptible to the effects of temperature at this stage and undergo certain denaturation processes, such as the breaking of sulfur linkages. Certainly, in experimental convulsions, the application of protein precipitants, such as alumina creme and certain antigens, have been known to cause convulsions and abnormal brain waves similar to those seen in epilepsy.[49] An interesting phenomenon is the intermittency of these experimental seizures. As in epilepsy itself, there must be some self-regulating mechanism. As mentioned by Sevag[50] concerning the amine oxidase of the brain, perhaps the products of some reaction leading to epileptic seizures may poison the enzyme which produced them. The interseizure period may then reflect the time necessary for the enzyme to be replaced and for other constituents to appear in high enough concentrations to set off another attack.

Another hypothesis can be advanced to account for the altered cerebral metabolism which may cause epilepsy. This is the existence of a latent virus, similar to the so-called "temperate" virus of Lwoff,[51] which exists symbiotically with the host cell, multiplying when the cell divides. This type of virus never alters the cellular metabolism sufficiently to cause a great increase in virus population as is seen in lytic forms which destroy the host cell. Although experiments on these temperate viruses, or pro-phage particles, have been confined to bacterium-phage relationships, still some of the same principles may apply to the infection of animal cells. There is no way to detect the presence of temperate viruses by grinding or disrupting the bacterial cell in any way,[52] and so it is no wonder they have not been found in homogenates of animal tissue. The appearance of these viruses has been induced by Lwoff[51] and other workers[53] by treatment of the host cells with ultraviolet light and certain chemicals. Application of any of these methods to living animal tissue would undoubtedly present some difficulties.

That certain viruses may exist undetected in man and other animals, however, has been known for some time. Herpes simplex and rabies viruses, for example, have been found to lie dormant, producing symptoms only intermittently.[54] Most people are familiar with the common coldsore or fever blister caused by herpes viruses. It has been stated that 75 percent of the population have herpes outbreaks at some time,[55] and therefore must harbor the virus. Activating factors are various and manifold, including upper-respiratory infections, fever, sunburn, menstruation, and emotional disturbances.[55] The virus certainly cannot be detected in the periods between outbreaks. Even in such virulent types as those causing influenza, Gard states:[56] "It can be stated definitely, however, that no active virus can be demonstrated in the cell until the stage of maturation has been reached."

The absolute latency of any virus possibly involved in the production of epilepsy can be explained in the light of Gard's ideas on the formation of incomplete viruses. He says that there is a possibility of a virus-host cell complex in animals, in which part of the host genes are destroyed and replaced by virus genes.[56] This is an elaboration of the statement of Luria:[57] "Infection produces a disruption of the genetic organization of the host and a change in the organization of the infecting virus, leading to the formation of a new unit system, the virus-infected cell, containing the existing enzymatic machinery of the host and superimposed upon it, a genetic pattern derived from the virus." The fact that there is an absence of adaptive enzyme formation in phage-infected bacteria[56] is indicative of the changed genetic properties of the host cell. This might tie in with the previous hypothesis concerning the possible failure of formation of an adaptive enzyme as a factor in epilepsy.

An interesting case has recently been described,[58]

in which epileptic attacks were seen to coincide with the intermittent manifestations of herpes simplex. There were definite changes in the electro-encephalogram, whose appearance coincided with positive virus cultures. During the periods between seizures, the serum findings were negative. An explanation can be based on the "irritative properties" of the infection, or on a more basic interruption of the intracellular metabolism. An explanation for the intermittence of manifestations can be based on the phenomenon of self-sterilization mentioned by Koprowski[54] in studies on the rabies virus. A virus invasion activates a local defense mechanism which destroys the virus. However, if this destruction is not complete, there would simply be a latent period until the concentration of the virus within the cell was high enough again to evoke a reaction.

Experiments have been carried out on the effect of viruses on various aspects of cerebral metabolism. Viruses may cause a decrease in the rate of glycolysis,[40] inhibit glucose phosphorylation,[59] or alter the formation of amino acids from glucose.[60] Viruses are known to be composed of nucleoproteins. Therefore, they direct the metabolism of the cell in the direction of the formation of nucleic acids. Probably the metabolism of glucose-6-phosphate is diverted[61] to the formation of glucuronic acid, then pentose phosphate, and finally incorporated in the virus nucleic acid. However, since the temperate viruses previously postulated as concerned in epilepsy would not increase to the extent of disrupting the entire cellular metabolic scheme, it is possible that the virus nucleic acids are broken down again by the cell and possibly used for energy production. The efficacy of certain drugs such as phenobarbital may be owing to the pyrimidine type structure which competitively inhibits nucleic acid precursors, thus putting this useless virus metabolic shunt out of commission. The efficacy of glutamate and citrate and acetoacetic acid in promoting the normal synthesis of acetylcholine and normal oxidative metabolism may be by by-passing such a shunt as well as the whole Emden-Meyerhof scheme.

Whether genes or enzymes or viruses may contribute to the development of epilepsy is still pure speculation. However, one fact is clear. There must be much more experimental work done to correlate the biochemical factors known to affect the precipitation of epileptic seizures. More must be learned about the exact site of action of the various drugs now used in the control of epilepsy. If the deficiency or excess of a single enzyme or metabolite or other cellular constituent can be linked to the occurrence of epileptic seizures, perhaps treatment can be given accordingly. Then, besides being effectively controlled, certain types of epilepsy may be prevented, or completely cured.

Standard abbreviations used in the diagrams and in the text of this paper include the following:

ATP	adenosine triphosphate
ADP	adenosine diphosphate
~P	high energy phosphate group
ACTH	adrenocorticotrophic hormone
ACh	acetylcholine
Acetyl-Co A	acetylated coenzyme A; "active" acetate

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Ultra Short-Acting Barbiturates

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THE ULTRA short-acting barbiturates are 1) evipal® sodium or hexobarbital, 2) thiopental or pentothal® sodium, and 3) kemithal and surital® sodium or thiamylal.

Evipal is 5-methyl-5 (1,2 cyclohexeny1) N-methylbarbituric acid. This barbiturate was introduced in 1932; the sodium salt is called evipal soluble. Evipal showed the great possibilities and limitations of intravenous anesthesia. It is useful for induction[1] and, when combined with curare, for intubation.[2] It was pointed out as early as 1936[3] that its use should be limited strictly to procedures of short duration, and that there are many contraindications to its use.

Thiopental sodium is the sodium salt of ethyl-l-methyl-butyl thiobarbituric acid. It was introduced in 1934. The dangers of prolonged thiopental anesthesia were noted by Reynolds[4] in 1939. Thiopental is used both intravenously and by rectum.[5] Its effects are prolonged by respiratory acidosis.[6] Thiopental is the most widely used of the ultra short-acting barbiturates, and has been most thoroughly studied. Throughout this report, the findings reported are those of thiopental, unless otherwise stated.

Kemithal is 5-(2,3 cyclohexenyl)-5-allyl-2-thiobarbituric acid. The first reports of its use appeared in 1946.[7-10] Although it produces less respiratory depression than other barbiturates according to early reports, it does produce cardiac irregularities.[11] More cardiac irregularities have been found with kemithal than with the other barbiturates of this short-acting group.

Surital or thiamylal is 5-allyl-5 (l-methyl-butyl)-2-thiobarbituric acid. It has been in use since 1948.[12-17] It is reported to be more potent than thiopental, to produce less respiratory depression, and to permit a more rapid recovery than thiopental.

All of the ultra short-acting barbiturates depress the central nervous system, with no selective localization in the brain. The amount of depression varies with the dose,[18] and a widely divergent tolerance has been found.[4,19,20] The utilization of oxygen by the brain is decreased.[21] The changes which occur in the electro-encephalogram during thiopental anesthesia have been reported,[22,23] and there is now an automatic control device for the administration of thiopental. It consists of an electronic integrating circuit which rectifies the amplified cerebral potentials as they are recorded from the scalp and then converts them into mechanical energy.

The energy is used to operate a pump which has been designed to deliver the proper amount of anesthetic agent to maintain the desired level of anesthesia.[24] It is an advantage to be able to see the amplified cerebral potentials during the administration of the ultra short-acting barbiturates, since the clinical signs are unsatisfactory, and the danger zone may be attained before one realizes it. Perhaps in the future of anesthesia, the use of such devices may become widespread.

Depression of the respiratory center is common with this group of anesthetic agents. Since the amount of depression is quite unpredictable with any given dose, there should always be a means of administering artificial or controlled respiration. There is still controversy about the respiratory "drive." Some contend that the respiratory center is controlled by the hypoxic drive by way of the chemoreceptors in the carotid and aortic bodies. Others insist that the respiratory center retains its ability to respond to increasing tensions of carbon dioxide,[25,26] and consequently is driven by the tension of carbon dioxide in arterial blood, as is the normal respiratory center. It is not known why reflexes concerned with the larynx are so persistent and troublesome.[15]

The accumulation of carbon dioxide which has been reported may be caused by premedication agents. No accumulation has been found in the blood of dogs, but we have used no premedication before the administration of intravenous short-acting barbiturates. We find, also, that the hemoglobin is practically saturated with oxygen since we routinely administer oxygen to our dogs under anesthesia throughout the observation period. Our studies are made in the first plane of Stage III, or light surgical

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anesthesia. We have found it possible to maintain this level for periods of about one hour with the following doses: surital 0.3 mg./Kg./min., thiopental 0.4, kemithal 0.9, and evipal 1.0. The slowest rate of respiration was found under kemithal and the most rapid under evipal. The tidal volume was least under kemithal and greatest under thiopental. The minute volume of respiration was least under kemithal and greatest under evipal. The oxygen use was least under evipal and greatest under kemithal.

The reports of the effects of thiopental on the electrocardiogram are contradictory. It has been suggested that respiratory difficulties are responsible for changes observed by some in cardiac activity.[27,28,29] We have found changes in the electrocardiogram only under kemithal. On different occasions, we have noted a shortened P-R interval, bigeminus, and interventricular block under kemithal. We have found the heart rate most rapid under thiopental and slowest under kemithal.

The changes in blood pressure which have been reported bear some relation to the depth of anesthesia.[30] We have found the blood pressure (recorded by strain gauge) well maintained under thiopental, surital, and evipal. It begins to fall in some dogs under kemithal, and may reach shock levels in a few before the hour of observation is terminated.

We have calculated peripheral resistance and found it lowest under kemithal and highest under surital. The cardiac index, determined by cuvette oximeter, is lowest under kemithal and highest under thiopental. It may be that the changes in respiratory and cardiovascular functions under kemithal result in part from the fact that we have found it necessary to use larger doses than with surital and thiopental to maintain the same level of anesthesia.

The ultra short-acting barbiturates seem to have no marked effect on liver function, kidney function, and the histology of the blood.[18,30]

Important work has been done on the metabolism of the ultra short-acting barbiturates. When small doses are administered, equilibrium between the fatty tissues and plasma is reached at subhypnotic concentrations, and patients awaken rapidly. When larger doses are administered, the drug (thiopental) accumulates in the fat depots of the body, and is then released to the plasma in small amounts as metabolism proceeds.

This explains the prolonged recovery period associated with these drugs.[31] Thiopenthal is demonstrated in the plasma as long as 40 hours after one dose.[32] The concentration of the drug in the fat rises slowly, and reaches a maximum in three to six hours; then it gradually declines. It may reach values 10 to 15 times as great in the fat as in the plasma and other tissues,[33] and as much as 70 percent of the total amount injected may be found in the fat depots.[34] Only about 15 percent is metabolized per hour; consequently, the drug is destroyed very slowly.[35,36] It is probable that the amount of fat and the state of nutrition are the determining factors in the tolerance of human beings for thiopental, as they are in animals.[37,38]

The liver is thought to be the major organ involved in the detoxication of thiopental.[39-43] Several possible types of metabolism have been suggested,[44] but the pattern of destruction is not definitely known. Liver disease increases the susceptibility to the ultra short-acting barbiturates.

Although it is not known what part the kidneys play other than to eliminate the products formed by the liver, the tolerance is decreased by the presence of a high concentration of urea in the blood.[45]

It is dangerous to use these drugs in the presence of increased intracranial pressure,[46] since either hypoxia or the accumulation of carbon dioxide lead to dilatation of cerebral blood vessels and further increase in intracranial pressure.

Autopsy reports have not been of much help in contributing information about the actions of the ultra short-acting barbiturates.[47]

Further study is needed on the effects of these drugs on the autonomic nervous system. The effects of premedication agents should be thoroughly investigated, since some of the depressing effects which have been attributed to the ultra short-acting barbiturates may be caused by premedication agents.

Experienced administrators are essential when using these drugs. Oxygen must be administered, and respiration aided when necessary, to prevent the accumulation of carbon dioxide which ushers in respiratory acidosis. The barbiturates should be used sparingly in patients with liver or kidney disease until more is known of the metabolic fate. The greatest field of the drugs' usefulness is for induction of anesthesia and for surgical operations of short duration.

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Pseudo-Hypertrophic Muscular Dystrophy in Three Children

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THREE SIBLINGS with progressive muscular dystrophies of the pseudo-hypertrophic type are presented.

The progressive muscular atrophies first described in the middle of the nineteenth century fall into two groups: 1) of the muscle, called myopathies and 2) atrophies secondary to the nerve lesion, called myelogenous, or neuro-amyotrophies. The hereditary factor is common to both. Duchenne has described the familial factor of the myopathies, the participation of the facial musculature in the process, and the pseudo-hypertrophic form. Weitz,[1] who has studied many aspects of heredity in disease, is convinced that in myopathies one should not speak of dominant heredity. Biemond,[1] on the other hand, considers heredity to be composed of two genetic factors; one dominant and the other recessive. Probably, the hereditary factor of pseudo-hypertrophic muscular dystrophy lies not in one gene, but in multiple genes and this is one of those diseases in which there exists as a determinant a complex gene. The appearance of the disease at an identical age in several members of one family demonstrates the geno-typical derivation of the disease; it shows that a gene places constitutionally abnormal properties on the muscles, as maintained by Toenniessen and Jimenez Diaz[2] in describing diseases which appear only at a specific time in life, despite the fact that their determinant genotype existed at birth.

In 1932, Barnes[3] studied a family with muscular dystrophy and found forms of pseudo-hypertrophy, hypertrophy, and atrophy. He concluded that the pseudo-hypertrophic form is much more frequent in youths, which statement is in accord with the interesting studies of the French authors Jonesco and collaborators and Dejerine.[4] In 1944, Shank and collaborators[5] made a clinical study of 40 patients with pseudo-hypertrophic muscular dystrophy and verified the hereditary nature of the disease. In 14 of the 40 patients, they found diverse heredity types; dominant, sex-linked, and simple recessive.

In 1950, Tyler and Wintrobe[6] studied 250 patients, of whom 175 showed signs of pseudo-hypertrophic muscular dystrophy. They found that heredity is variable. They included the simple dominant, simple recessive, and sex-linked forms, as well as other more complex hereditary mechanisms. The authors quote Julia Bell, who has reviewed the literature on the hereditary factor in pseudo-hypertrophic muscular dystrophy up to 1943. Of 1,341 cases taken from medical literature, she found 75 percent with genetic influences. She has classified them in three genetic groups: dominant, recessive, and sex-linked; as well as in three clinical groups. She believes that the same principle gene can produce the various clinical types, that the same type can repeat itself in the same family, and that the dominant types are relatively rare.

In 1950, Tyler and Stephens[7] studied 1,249 members in one family, and found clinical manifestations of facioscapulohumeral dystrophy in 58 individuals. They demonstrate a typical dominant Mendelian heredity. These authors quote from the works of Eulenberg and Cohn, Weitz Niwa, and Minkowski and Sidler, which emphasizes the value of dominant heredity in pseudo-hypertrophic muscular dystrophy, as does Robinson, in his studies of 20 family groups in five generations.

From these studies, it is deduced that the form of heredity is variable and can be sex-linked, dominant, or simple recessive. The various types of pseudo-hypertrophic muscular dystrophy are transmitted in different ways, thus the pseudo-hypertrophic form is transmitted by a sex-linked or recessive factor, while the majority of facioscapulohumeral dystrophy cases are inherited in a dominant form. When sex-linked or recessive factors are the means of transmission, manifestations of the disease appear especially early; when heredity is dominant, their start is late.

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To demonstrate that progressive muscular dystrophy is a sex-linked hereditary disease, two independent groups of two-egg twins of different sex were studied. It is noted that the male children suffered from muscular dystrophy, but not so their respective sisters. Heredity is transmitted ordinarily by the mother; the male child contracts the disease more frequently; members of the same family may, in general, present the same type of dystrophy. Another important fact is the age, genetically determined, at which the disease appears. This has been studied by Cobb and Aring.[1] Jimenez Diaz[2] studied a family of three patients having myopathies, finding that in all of them the disease started at age 14. Aside from these familial cases of pseudo-hypertrophic muscular dystrophy, clinical cases are frequently observed in which there is no familial or hereditary background. There are many case reports of this disease which show very interesting aspects of its symptomatology, etiology, pathogenesis, and treatment.

Few cases of pseudo-hypertrophic muscular dystrophy have been observed among us. In 1946, Voto Bernales[8] and his collaborators presented to the Neuro-Psychiatric Society a case of muscular dystrophy of the Gowers type; they emphasized the differential diagnosis between this myopathy and the Charcot-Marie-Tooth peroneal amyotrophy, which in many cases is so similar that some authors do not consider them as separate entities. There are numerous hypotheses on the pathogenesis of the disease: muscular, nervous endocrine, vegetative, biochemical, or deficiency.

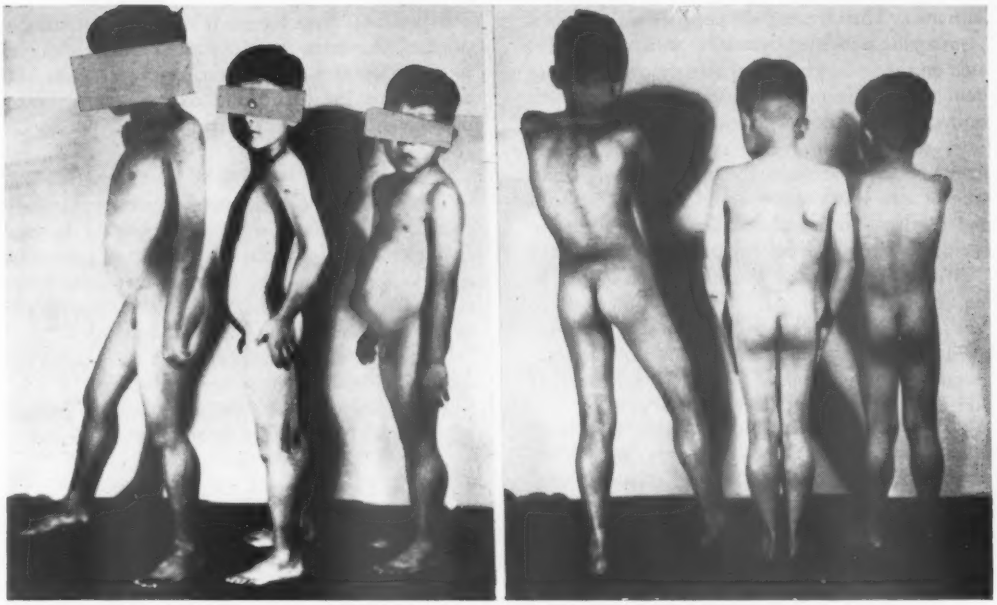
Commentary

In our cases, it is a familial disease and is present in the three boys, but not in the sister; we believe that the children are the first individuals of this family to have this disease, although perhaps some members may have been carriers of abortive or latent forms. Heredity has been, from our observations, a sex-linked factor; furthermore, two of these patients illustrate the hereditary determination of age of onset, so well studied by Cobb and Aring.[7] Although we have not personally examined the ancestors and collaterals as we would have desired, it is interesting to note in them the existence of chronic alcoholism, oligophrenia, and congenital malformation; it has long been thought that heredity is a factor in the origin not only of mental illness, but also of certain neurologic and muscular diseases. As Delgado[9] says: "Regardless of how zealously and how expertly the family history is taken, the hereditary origin of a morbid process, the familial character of the disposition, and probabilities of the genetic prognosis will not be based on a sure foundation if the investigation is not completed with a serious clinical examination of all accessible relatives of the patient." We have been unable to draw definite conclusions about heredity in our three patients since we are hindered by the low cultural level of the family.

In the first patient, there is associated bilateral cryptorchidism similar to the first patient in Allue-Horna's[10] series. It appears that vitamin E is indispensable for the synthesis and activity of the sexual hormones of the hypophysis in males, the effects of its administration being analogous to those obtained with the injection of gonadotropic hormones. Grande[10] summarizes the opinions of various authors on the capacity shown by the extracts of the anterior hypophysis to avoid some typical alteration of E avitaminosis, as occurs in cryptorchidism and castration. Vogt and Moller[10] recognize a relationship between the formula of alpha tocopherol and gonadotropic protohormone.

Cryptorchidism appears in some patients with progressive muscular dystrophy. Marañon[11] considers the endocrine factors in congenital and familial myopathies important, even suggesting that muscular dystrophies are related to hypothalamic congenital malformations. In reviewing the literature, we find cases of hyperthyroidism which have appeared in the course of endocrinopathies (Froment and collaborators,[12] Dufour, Duverne, Lievers[4]), of myxedema (Rimbaud and collaborators,[13] Schlesinger, Falta,[4] Devre, Garcin, Mollaret, and Alajouanine[13]), and of acromegaly (Bregman, Eulenbourg, Sanz, and Janney[4]). Testicular atrophy and adrenal insufficiency are rare.

Our observations show us once again the familial character of the disease, and in one case, the clearly apparent endocrine dysfunction, cryptorchidism. It is probable that the cause of pseudo-hypertrophic muscular dystrophy is not single but is caused by various factors which have intervened in children with a predisposition. In this series we found no creatinuria, which is frequent in myopathies; however, in children, creatinuria is extremely variable and inconstant. According to Poncher and Woodward,[14] the creatine and creatinine change capriciously in children to the extent that they appear as two independent phases of the metabolism. As explanation of the lack of creatinuria in this series, the experiments carried out on animals may be cited. Verzar[15] showed that in rabbits the creatinuria appeared simultaneously with muscular dystrophy when they were put on a vitamin E deficient diet, and that the creatinuria disappeared after the administration of large doses of this vitamin (50 or 100 mg. daily). When the therapy was discontinued, the creatine in the urine invariably increased within 24 hours. Therefore, it appears that vitamin E has



Left: Cases 1, 2, and 3, lateral view. Right: Cases 1, 2, and 3, posterior view.

the ability to stabilize the creatine in the body. Verzar bases his theory on the supposition that in the male, vitamin E, while curbing the creatinuria, exerts its action on the anterior lobe of the pituitary. He felt that this metabolic abnormality is the result of an upset in the muscular metabolism on the one hand, and of the secretion of the anterior lobe of the pituitary and of the sexual glands on the other, the function of the two latter systems having become unbalanced. The lack of creatinuria in our patients can be explained as owing to their early treatment with alpha tocopherol, the examinations having been made later.

In the differential diagnosis, we must first discard the myelopathic muscular atrophies which start with the distal extremity of the limbs, and are accompanied by fibrillar contractions, total or partial degenerating reactions, and in general are not of a familial nature.

Thomsen's disease or congenital myotonia may be confused with pseudo-hypertrophic muscular dystrophy in pseudo-hypertrophic form; however in the former the muscular hypertrophy is real and more general; there are also myotonic reactions to mechanical and electric stimulation. However, one must not forget that a true hypertrophy is apt to exist in muscular dystrophy. This is important from the standpoint of functional prognosis, as has been well demonstrated by Rouques and collaborators.[16] Furthermore, there are forms of transition between these two diseases (Steinert's Disease), which has been considered as a clinical entity caused by the presence of endocrine imbalance. Sometimes pseudo-hypertrophic muscular dystrophy may be confused with muscular cysticercosis, as was noted by McGill[17] who described two cases of generalized cysticercoses where the pseudo-hypertrophy of the calf owing to the existence of numerous viable cysticerci was prominent.

Because of the importance placed on a vitamin deficiency in this type of process, particularly of vitamin E, we instituted treatment based on synthetic alpha tocopherol (100 mg. daily) in the three siblings over a period of one year. The result of treatment can be summarized in the following table:

Number of patients	3
Subjective improvements	2
Cures	0
Results	Negative

We used vitamin B_6 intermittently without obtaining any definite improvement. In this regard, the studies of Antopol and Schotland[18] should be

mentioned. They treated six patients with pseudo-hypertrophic muscular dystrophy with vitamin B_6, based on the findings of muscular dystrophy foci in vitamin B_6 deficient rats. Considerable improvement resulted. This form of therapy is under intense study, together with other vitamins, particularly vitamin E and riboflavin. Actually, use is being made of desoxicoticosterone and vitamin B_{12} with good results.[19] In our observations, it does not appear that a vitamin deficiency played too important a part inasmuch as a vitamin deficiency is so frequent in children in this locality and there are so few cases of muscular dystrophy. Probably, it is not only a vitamin deficiency, but also an unstable equilibrium between vitamin E and other vitamins, that is one of the underlying causes of the disease.

One should not draw conclusions on such complex problems from the study of so small a number of cases. Our intention is to stimulate our colleagues to continue and enlarge the obscure causes and demonstrate the progressive course of the disease in spite of treatment with vitamin E.

Summary

Three cases of clinical pseudo-hypertrophic muscular dystrophy are discussed showing the familial characteristics of the disease, with a definite endocrine factor (cryptorchid) in the first case. There exists a sex-linked heredity and a lack of creatinuria. In the first two, age heredity was observed.

Treatment on the basis of alpha tocopherol and other vitamins have given negative results.

The etiology and differential diagnosis of pseudo-hypertrophic muscular dystrophy are reviewed.

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Syphilis in Industry*

John Godwin Downing, M.D.

ALTHOUGH SYPHILIS is an old disease, it took industrialists a long time to realize their responsibility regarding it. Serious accidents and financial losses finally prompted action. In 1920, the Association of Railway Surgeons adopted a resolution for co-operation with the Public Health Service in syphilis control. This action was prompted in two ways. In the first place, the increased speed of trains demanded good health in those responsible for safety. Secondly, the workers were alarmed because payment of beneficiaries suffering from late syphilis was rapidly depleting the treasury of their brotherhood. Later, the increasing publicity about syphilis aroused the public and caused unwarranted alarm, with resulting demands for increased precautions regarding those in charge of transportation and those having personal contact with the public, such as food handlers, barbers, hairdressers, and the like. As a result, considerable agitation arose concerning the employability of these individuals, and considerable injustice occurred regarding their status in industry.

Industry became a first line of attack in the organized campaign against syphilis. As might be expected, the greatest incidence of acute syphilis was found among young workers. In the older group occurred the late cases, with a fairly high incidence of cardiovascular syphilis among those doing heavy work and with neurosyphilis frequent among those doing clerical or executive jobs. Both forms of the disease have been expensive for employers. Industrial accident board hearings became frequent for claims following trauma, which revealed the underlying syphilitic ulcers, fractures, gummata of bones, eye lesions, cerebrospinal manifestations, and aneurysms. The recent national campaign for control of syphilis inundated readers with innumerable reports in both lay and medical journals. The campaign was a success, at least on the surface.

When the committee preparing a symposium on syphilis to be reported at the American Academy of Dermatology and Syphilology requested me to obtain some data on the present problem of syphilis in industry, I accepted this assignment with interest, because I was curious to know how syphilis as an industrial problem was affected by penicillin and other antibiotics. For the past five years or so it has been reported that syphilis is no longer a problem. Syphilologists were seeing fewer patients, and referrals from local practitioners were drastically reduced. Attendance at public clinics was sharply diminished, and in some parts of the country the public health officials closed them. In some areas, venereal disease control activities were shared or combined with other functions of public health departments. An attitude of complacency had set in. On the other hand, many physicians warned of the dangers of premature rejoicing; while the incidence of syphilis was being reduced, the battle was by no means over. It is estimated that at the present time there is a reservoir of over 2 million people in this country who need treatment for syphilis. During the year 1953, about 91,000 civilians acquired syphilis, of whom some 10 percent were reported and treated for primary and secondary syphilis. It is no wonder then that responsible public health officials and physicians have repeatedly warned us to adopt a realistic stand on syphilis. They prophesied a resurgence of this disease if efforts were relaxed too soon. It is interesting to note that in 1953, 18 states and the District of Columbia reported an increase in infectious syphilis.[1]

*Reprinted through the courtesy of the author and the *Journal of the American Medical Association* in which it appeared, **158: 468-472, Jun 11, '55.**

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PREVALENCE OF SYPHILIS

A search of the literature revealed a dearth of recent information on the subject of syphilis in industry. I then wrote to a large number of medical directors of various industrial plants asking them for this information. Most of these directors felt that syphilis was not a problem, while others said it was worth-while screening their employees even for the few cases that might be uncovered. Interestingly enough, this sense of security was fostered by the fact that the incidence of positive reactions in these industries was only 1 percent, or about one half of what it had been 10 years ago. The prevalence of syphilis in industry has always been difficult to estimate. About 10 years ago, it was estimated at 2 million cases. Assuming that 30 percent of the adult population is employed in all kinds of industry, and that the prevalence rate among workers is the same as that in the general population, there would be 600,000 industrial workers with syphilis. Such a crude estimate is subject to considerable error, particularly in assuming prevalence to be proportional to population. No attempt has been made to determine whether any difference does exist between the prevalence rate for industrial workers and persons not in industry. Available data are not clear on this point, the main difficulty being that occupational rather than industrial groupings were used for study.[2] In 1943, Howles[3] cited estimates that, exclusive of women workers, syphilis was responsible for the loss of 21 million work days each year, amounting to 84 million dollars. Compensation payments have been made for alleged industrial disabilities, although occasionally a syphilitic disease and not the occupation was responsible.

One organization, which employed more than 36,800 persons in various plants in 17 states, established a central serologic laboratory, and all new employees were required to submit to a test. Older employees were permitted to submit or not as they wished, but less than 10 percent refused. In all employees examined, 1,488, or 4 percent, had positive tests. As a result of venereal disease control instituted through funds from the federal government, many plants instituted pre-employment serologic tests and routine tests during periodic or annual physical examinations of the employee, regardless of socioeconomic status. One life insurance company instituted tests among 13,000 home office employees at their annual physical examination, continuing them for two years. The number of employees who had doubtful or positive reactions in one or both years amounted to 304, an average of 1.42 percent per year. Many of these cases were considered to have a nonspecific serology.[4] It is interesting to note that in my private practice, among industrial workers referred for questionable occupational disease of one type or other, routine serologic tests revealed 1.5 percent positive reactions.

A comparison of statistics is also interesting. In 1920, C. Morton Smith,[5] the noted syphilologist, published a paper in which he lamented the fact that active syphilitic lesions were so rare that it was impossible to find sufficient clinical material for teaching students. He attributed this rarity to four factors: early diagnosis, better treatment, prohibition, and education. His figures were apparently based on the syphilis rate of 1919, during which year 100,466 cases were reported, or 96.3 per 100,000 population. During this time, prohibition was actually in effect, and it was practically impossible to secure intoxicating beverages without a federal permit. There was no such thing as a bootlegger. However the situation was rapidly taken care of, and the illegal flow of whiskey was instituted and speedily increased. Coincidentally, the rates of syphilis soared from a low of 100,466 cases in 1919 to a high of 238,656 in 1933 when prohibition was repealed, an increase of 137 percent.[6] However, there were other factors to account for this increase. After the repeal of prohibition in 1933, the reported incidence of syphilis in the civilian population continued to climb, reaching a peak of 575,593 cases in 1943.[1] Over these years, there was a decline in the moral caliber of the country, manifesting itself by many signs, one of which was an increasing degree of sexual promiscuity. The sexual mores of the people sank to a low ebb. Nationally, the illegitimate child rate was about 4 percent of total live births. In Massachusetts, my colleagues and I reported on the first 1,005 deliveries that were part of our prenatal syphilis study at the Boston City Hospital; 4 percent of the mothers admitted that they were single, and, undoubtedly, many more of the series were illegitimately pregnant.[7] In the field of juvenile delinquency, the third most common cause of arrest in 1952 was "sexual activities." Why has prostitution decreased in the United States? Law enforcement and the pressure of public opinion are partial answers. More important is the competition from the increasing number of the noncommercialized promiscuous amateurs. The prostitute is no longer a major factor in the venereal disease control problem. She has been replaced by the amateur. With the advent of penicillin and its short-term treatment, whatever fear the amateur had of long and arduous treatment, lasting for a year and a half, was completely dissipated. Whatever effect the arsenical and bismuth era had in preventing sexual promiscuity no longer exists. Promiscuity in this country is on the increase. Penicillin will not eradicate syphilis, for no

disease in the history of man has been treated out of existence.

Whatever reduction in the syphilis rate in this country has been achieved has been due to two factors. The first of these is the organization and efficient functioning of venereal disease control activities throughout the United States. Here we see the effects of the funds expended by federal, state, and local governments in finding the contacts of persons with active syphilis and bringing them to treatment. Second is the effect of penicillin in rapidly reducing the infectiousness of syphilis and providing an early and adequate cure. However, in spite of these funds and wonder drugs, the reported syphilis rate in the United States in 1953 was 100.8 per 100,000, whereas in 1919, without organization and without funds, the rate was 96.3 per 100,000.[1] Recently the federal government drastically cut its budget and reduced the grants-in-aid for venereal disease control to the states and local communities. This was short-sighted economy. Many states and communities no longer provide epidemiological services in tracing contacts of persons with active syphilis. The authorities have lost sight of the fact that there is an infectious reservoir of venereal disease still remaining in our communities. The sexual mores of our people, being what they are, will further increase this reservoir. If control efforts are relaxed through overoptimism and penny-pinching and if the present level of sexual promiscuity persists, one can predict epidemics of these diseases in the future.

The curtailment of federal grants to the states was reflected in industry. Many state health departments that had previously performed serologic tests for syphilis without charge for industrial physicians ceased doing so; for example, New York state. Industrial medical departments were unwilling to use their meager budgets to have these tests done by private laboratories. As a result, many industries stopped performing these tests. In plants with full-time medical directors, where preemployment and periodic examinations were performed, a routine test of blood, urinalysis, vision testing, hemoglobin determination, and other simple tests were part of a screening of the employee. Many of these examinations are the result of previous routine performance of more limited tests such as the serology test for syphilis or roentgenographic examination for tuberculosis. Certification by the American Academy of Occupational Health postulates the routine serology. Some plants still maintain this preemployment serology, for they are convinced that in the long run it is worth-while. Several medical directors have stated that they believe the restricted budgetary measures are short-sighted, and despite the dramatic advance in therapy, the incidence of syphilis is increasing in the industrial population.

A consideration of a few statistics is revealing. In an industry where the socioeconomic status of the employee is on a high plane, there is an apparent improvement in the over-all picture. For example, from one plant come the figures shown in Table 1.[8] The state of Connecticut shows an interesting tabulation of the number of serologies taken during the past five years (Table 2). On the other hand, a high syphilis rate is found among low socioeconomic groups. In Connecticut, where the law requires compulsory examination of persons accused of vice charges, out of a total of 7,083 examinations from 1944 to 1952, 897, or 12.6 percent, revealed infection with venereal disease—9.3 percent syphilis and 3.3 percent gonorrhea. For the fiscal year 1952, 10 percent of those examined had syphilis.[9] In New Jersey, where Shepard blood-tested 3,170 agricultural migratory laborers, 414 (13.1 percent) had positive reactions and 385 (12.1 percent) had doubtful reactions, or a total of 25.2 percent with positive or doubtful tests.[10] Fiumara in Massachusetts, examining 91 agricultural migratory workers in Middlesex County, found that 3.3 percent had syphilis. However, the figures in two plants are interesting,

TABLE 1.—Results of Mass Blood Testing for Syphilis in Industry A*

Year	No. Taken	Positive		Doubtful	
		No.	%	No.	%
1949	1,543	2	0.13	..	....
1950	2,216	5	0.23	2	0.09
1951	4,998	18	0.36	4	0.08
1952	1,469	..	....	..	....
1953	1,082	1	0.09	..	....
Total ...	11,308	26	0.23	6	0.05

*Source requested that industry not be identified.

TABLE 2.—Serologic Specimens Taken by the Bureau of Industrial Hygiene, Connecticut State Health Department, 1949-1953

		No. of Specimens	Reactive Specimens	
			No.	%
1949 ..	All types	306,120	12,333	4.0
	Industrial	35,708	522	1.5
1950 ..	All types	364,658	10,856	3.0
	Industrial	56,326	595	1.1
1951 ..	All types	418,256	10,974	2.6
	Industrial	76,836	949	1.2
1952 ..	All types	400,729	12,681	3.2
	Industrial	70,252	1,268	1.8
1953 ..	All types	398,288	11,683	2.9
	Industrial	70,004	804	1.1
Grand total	All types	1,888,051	58,527	3.1
	Industrial	309,126	4,138	1.3

TABLE 3.—Results of Mass Blood Testing for Syphilis in Industry B*

	NO. OF TESTS						
		Positive		Doubtful		Positive and Doubtful	
	Total	No.	%	No.	%	No.	%
1949 ...	4,044	91	2.25	17	0.42	108	2.67
1950 ...	4,849	102	2.10	9	0.19	111	2.29
1951 ...	4,734	57	1.20	18	0.38	75	1.58
1952 ...	4,890	48	0.98	36	0.74	84	1.72
1953 ...	4,717	31	0.66	32	0.68	63	1.34
Total.	23,234	329	1.42	112	0.48	441	1.90
Jan. to July, 1954 .	2,037	19	0.93	20	0.98	39	1.91

*Source requested that industry not be identified.

TABLE 4.—Results of Mass Blood Testing for Syphilis in Industry C*

	Total Serologies	Negative Serologies		Positive Serologies	
		No.	%	No.	%
1950-1952 ..	740	715	96.62	25	3.38
1953	1,748	1,738	99.43	10	0.57
1954 (6 mo.)	450	433	96.22	17	3.78
Grand total †	2,938	2,886	98.23	52	1.77

*Source requested that industry not be identified.
†January 1950 to June 1954.

showing a low incidence up to 1953, but from January to July, 1954, a definite increase in positive reactors is noted[11] (Tables 3 and 4). In certain areas, however, the percentage of positive reactors did not fall as low as in other areas[12] (Table 5).

Selected case findings in syphilis control show the value of continued screening techniques (Table 6). The Cumberland County Health Department screened 9,093 persons out of a population of 65,000 (aged 15 to 70) and found 738 reactors. In other words, by careful screening of 14 percent of the population, 39 percent of the estimated total reactors in the county were found. Unskilled worker groups contributed the most reactors and skilled laborers and professional workers the fewest.[13]

VALUE OF EDUCATION IN SYPHILIS CONTROL

In 1920, Smith[5] mentioned the value of education in the control of syphilis. Education for the average person has enabled the workers in this field to publicize facts, with remarkable improvement in the control of this disease; however, apparently this education has not penetrated to employers and certain medical directors. It would seem that in this enlightened day employers would depend on their medical directors for the evaluation of whether a person with a positive serology is a useful worker. All syphilologists doing industrial work have always found a positive serology embarrassing. The earlier literature was filled with cases of injustice. At that time, employers went by the findings of such a reaction. Reporting to the insurer always convinced him that the eruption, no matter what it was, must be syphilis. This often started a rumor that reached the employer, with subsequent discharge, despite the dermatologist's protestations of noninfection. It also handicapped the worker in finding new employment. While recent education has been valuable both to the employer and the employee, the situation still remains embarrassing. This was evidenced by the situation that developed recently in Cincinnati, a city that was previously cited as a shining example of syphilis control.

According to a letter received by the chairman of the Academy of Medicine of Cincinnati, a large number of industries in the city had an employment policy that barred from work any individual who had a positive serology, on the fallacious assumption that this indicated acute syphilis. The writer[14] stated that while over and over again a man or woman with syphilis, either acquired or congenital, and properly treated, was permitted by state law and modern medical practice to marry, he or she was refused employment because the qualitative Wassermann, Kahn, or Kline test was reported positive. He took up this matter with personnel managers and was told that this archaic policy was formulated by the advisors of the company. These officials, he said, asked how it was known that antibiotics really cured syphilis and declared that other persons would refuse to have personal contact with a man known to have syphilis, and that they could not take chances with such a man. The writer declared that this unenlightened employment policy made the medical profession look ridiculous. He requested that steps be taken to enlighten such employers.

The council of the Academy of Medicine of Cincinnati submitted this letter to a group of competent syphilologists and to the Cincinnati Dermatological Society for their comments. Suitable recommendations were made and were approved by the Committee on Industrial Medicine and Health and the Medical Committee of the Procter and Gamble Company. It was proposed that the matter be brought to the attention of the medical profession of Cincinnati and to industrial medical departments and the Cincinnati Public Health Department. The comments and recommendations were carefully worded and included the recent facts regarding the present-day knowledge of the serologic test for

TABLE 5.—Results of Mass Blood Testing for Syphilis in Industry D*

Year	TOTAL No. Tested	TOTAL Positive No.	TOTAL Positive %	MALE No. Tested	MALE Positive No.	MALE Positive %	FEMALE No. Tested	FEMALE Positive No.	FEMALE Positive %
1949	6,222	29	0.47	5,508	25	0.45	714	4	0.56
1950	11,177	34	0.30	8,630	27	0.31	2,547	7	0.27
1951	22,639	87	0.38	16,929	81	0.48	5,710	6	0.11
1952	14,738	72	0.49	12,455	68	0.55	2,283	4	0.18
1953	19,830	102	0.51	15,373	89	0.58	4,457	13	0.29
1954†	6,065	22	0.36	5,070	20	0.39	995	2	0.20

*Source requested that industry not be identified.
†Taken from January to April.

TABLE 6.—Percentage of Syphilis in Mass Blood Testing at Selected Industries in Atlanta, Ga.

	1950					
	WHITE			NEGRO		
	Positive and Doubtful			Positive and Doubtful		
Industry	Total	Male	Female	Total	Male	Female
Manufacturing .	2.3	2.3	2.1	26.0	25.4	28.1
Utilities	1.2	1.4	1.0	21.4	23.9	10.2
Government ...	1.5	1.8	1.0	18.7	18.2	25.0
Offices and stores	1.0	0.8	1.1	21.5	22.4	19.7
Total tested ..	1.9	2.2	1.6	19.9	19.6	20.1

syphilis and the various clinical stages of this disease. The Committee agreed that nobody should be refused employment solely because of a positive serologic test for syphilis. The interpretation of the serologic status of an individual can be made only by a physician and may occasionally be a complex problem requiring the services of an expert. Under no circumstances should the employability of an individual with a positive serologic test for syphilis be made by lay persons who pass on the other qualifications of the prospective employee, and there is even the question of violation of the privileged communication statute under such conditions. The certificate of a physician that the sero-positive individual is noninfectious and physically employable should be sufficient.[15]

This is no new problem. Many years ago, Joseph Earl Moore,[16] head of the Syphilis Clinic of Johns Hopkins Medical School, stated, "So far as is known, there is, except in rare instances, no good evidence to indicate that a syphilitic worker is any more likely, (a) to be involved in accidents than his non-syphilitic brother; or (b) if involved in an accident, to suffer any more serious or prolonged disability; or (c) to suffer more severely from intercurrent non-syphilitic disease; or even (d) to undergo material shortening of his life span. Whatever risk there may be against any of these eventualities may be largely guarded against except in cardiovascular or neurosyphilis by adequate treatment."

It is too early to know whether the complications of specific cardiovascular and cerebrospinal disease can be entirely prevented by the use of the newer combinations of treatment, but the present results indicate that they can largely be controlled. In certain industries, such as the railroads and commercial air lines, pre-employment blood tests have been advocated for train men and pilots, partly on the basis of possibly preventing serious accidents from man failure due to active cerebrospinal disease. Such a possibility seems remote, as these employees are examined at least annually, and any indication of such a development should be picked up in the 10 to 20 years elapsing between the time of primary infection and the late complication.

The writer of a recent résumé states that in using the 1953 figures as a basis for evaluation, such as one new case of recent or old infection reported per 1,000 of population, he thinks we may agree that the percentage does not suggest a valid reason for doing routine pre-employment serologic tests.[17] It must be recognized, however, that there are sufficient exceptions to the above figures, particularly in certain socioeconomic and geographical groups, to indicate such routine testing as a screening procedure in lieu of history taking and physical examination, or when the suspected or known incidence of disease is higher than average, and the facilities for running the tests are readily available and are comparatively inexpensive.

Summary

With a reservoir of about 2 million persons in the community needing treatment, and with 156,099 patients reported in 1953, and considering the sexual mores of our people, syphilis will remain with us for some time to come. In industries employing highly skilled workers, members of the higher socioeconomic groups, the discovery rate for syphilis will be admittedly small. However, the cost of finding even these few is worth-while to the industry, because it will not only retain the services of a highly trained individual, but also eliminate unjustifiable claims for disabilities that are not due to occupation but rather to syphilis. For industries employing less skilled laborers or laborers of the low socioeconomic groups, or industries located in high syphilis prevalence areas, the blood test becomes even more important as a part of the routine pre-employment examination. There is need even today to educate management regarding the employability of syphilitics or persons found to have a positive serologic test for syphilis who have no medical defect that would prohibit them from carrying out assigned duties. The advisability of employing such employees should not rest on lay authority, but should

be decided by competent physicians. The new antibiotics have done a tremendous job in speeding up the cure of syphilis, but there is much more to be done. Any attempt to reduce or abandon the control efforts by public health authorities is not only short-sighted but foolhardy.

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World Health Organization

HUMANITY'S GREATEST ADVENTURE

Ritchie Calder, C.B.E.

EXULTING IN THEIR NEW-FOUND FREEDOM to discuss the hoarded secrets of a decade, the physicists of 73 countries, meeting in the United Nations International Conference for Peaceful Uses of Atomic Energy, could promise the world unlimited power. The biologists' enthusiasm was tempered by certain misgivings.

The common ground between physicists and the biologists was that the medical risks should not hamper the development of atomic power for the advantage of all mankind.

The Atom and Heredity. On the genetic issues, the scientists were as frank as the facts demanded, that we know very little about radiation effects on human genes; that we can only judge by the evidence from plants, insects, and quick-reproducing animals and that evidence is not reassuring. As Professor Gustafsson of Sweden pointed out, for every beneficial mutation there are five hundred undesirable mutations. While the risks are confined to the individual (the worker, for instance, involved in a reactor accident), the problem is minimal. The danger will arise from a rise in "background radiation," an increase in the natural background to which living things have been exposed in the form of cosmic rays or from the natural radioactivity of rocks, such as granite. That, in terms of the present scope of atomic power plants and present uses of industrial and medical isotopes, is not an immediate problem. But, without research, foresight, and international conventions and codes of practice, the genetic effects on the population at large may be serious. The paramount importance of these discussions at Geneva was that biologists, the world over, have shared their misgivings and are prepared to do something to remove them. The first provision is that until the subject is better understood, the increase of the radiation background should never be more than a tenth of the "maximum permissible dose" which the International Commission for Radiological Protection prescribes for workers, of 0.3 roentgens per week. The Soviet public health and industrial health codes accept the same maximum permissible dose but apply it as 0.05 roentgens per day.

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The Atom in Medicine. The positive benefits of development of atomic energy to medical research and clinical treatment as well as to biological science in general is to be found in the isotopes. Dr. Willard F. Libby, the US Atomic Energy Commissioner, said that even if power had itself proved impossible of attainment, the atom would have paid its way (and had already done so) in terms of the uses of radioactive isotopes.

"I should not be surprised," he said, "if isotopes lead the atomic work for many years, until the industrial power plants come into action." He suggested among other things that, given highly sensitive instrumentation, portable and cheap, capable of detecting weak and harmless radiation, doctors might be able to use radioactive pills for diagnostic purposes.

Dr. Paul C. Aebersold, director of the isotopes division of USAEC, said that the use of isotopes, particularly in industry, had already meant savings of $100,000,000, and he reckoned from the evidence produced at the Conference from other countries that the world savings must already be of the order of $1,000,000,000.

The Western scientists were obviously impressed by the extent of the use of radioactive isotopes in the USSR. There are over 160 points throughout the Soviet Union where cobalt 60 is being used as a routine in the treatment of malignant disease. Prof. M. N. Fateyeva, a Russian scientist, gave an impressive account of the isotopic research into hypertension, cardiac disease, and metabolic diseases going on in Russia.

Tracking Diseases. As the discussion of medical usage proceeded, with evidence from many countries, it became obvious that scientists the world over

can with such isotopes attack the enemies of all mankind: the diseases which destroy them. Leprosy, polio, malaria, pernicious anaemia, all came under review. The first line of attack is on the carriers of epidemic diseases; from the housefly, which can be "branded" with isotopes and tracked, to the viruses which can be labelled and studied in transmission. Dr. Dale W. Jenkins of the National Research Council, USA, presented a survey from world sources of the vast variety of epidemiological studies which are now proceeding. He pointed out that the study of the dispersal and flight range of houseflies had been going on for fifty years, but now the flies can be made to pick up radioactive filth and thus be followed. The marked flies, released by the thousands, can, in a high percentage of cases, be recovered, and have been tracked as far as thirty miles. They could thus study the detailed habits of the flies, an important factor in relation to outbreaks of dysentery and poliomyelitis. A very promising field of research is the labelling of the organisms of disease. Dr. Jenkins cited eleven disease organisms which had been labelled with isotopes, including the influenza virus, the plague bacillus, and the tuberculosis bacteria. With such labels they could follow the organism into the carriers. They could study the ticks, mites, fleas, lice, and other hosts of diseases which are transmitted to man.

Radioactive Mosquitoes. Arctic flowers had been made radioactive so that mosquitoes swallowed the radioactive tracers with the nectar and from there on were marked insects. By labelling insecticides, it could be determined how they could be most effectively disseminated and do the least harm to the predators which help, in nature, to keep the pests under control. One way of getting rid of disease-carrying insects was not to kill them but to sterilize them with radioactive isotopes so that they could not breed. By use of isotopes, Dr. Jenkins pointed out, airborne and waterborne diseases could be studied. He indicated that it would be possible to study the transmission of pollen which caused allergies.

Dr. J. Costa-Ribiero, Brazil, gave an account of work going on in his country, tracking mosquitoes. The larvae of the mosquitoes were bred in a radioactive liquid, and when they emerged, they were tracked to a distance of 800 metres. Prof. V. R. Khanolkar, India, gave an account of work on leprosy, which afflicts 2,000,000 people in India, and in the treatment of which the basic sulphone drugs had had good but inconstant results. The action of the drug was now being studied in human cases by tracer methods and the movement of the organism tracked. Dr. E. Lester-Smith, United Kingdom, reported on isotope work on pernicious anaemia—not only how the vitamin B_{12} is absorbed in a curative way, but also how a radioactivised form of the vitamin can be used as a research instrument to discover the nature of the disease process.

From many countries came reports on the use of radioactive iodine in the study and treatment of thyroid disease. Dr. C. H. Jaimet, Canada, described how hypo- and hyperthyroidism can be diagnosed by measuring the amount of radioactive iodine in the saliva.

Looking into the Brain. The range of possibilities extended from the treatment of brain tumour (glioblastoma multiforme) by introducing boron and radiating it by neutrons, which make the boron radioactive at the site of the tumour; to the medical use of radioactive colloid isotopes in liquid suspension, which will remain in the cavities into which they are injected, and can be used to treat malignant disease on the surface wall of the cavity; to study of formation of red blood cells in the marrow, and the relationship to anaemia associated with cancer and to leukaemia; to the use of radioactive carbon in studying the mode of action of the new antitubercular drugs.

A paper by W. F. Neuman, University of Rochester, United States, showed how bone-seeking isotopes are explaining the composition and structure of the bone, but pointed out that when these isotopes become located in the skeleton, it is difficult to remove them without "complete demineralization of the entire skeleton, a therapy fraught with danger and difficulty."

A major session on disposal of waste products from atomic power plants included reports of experience at Hanford, United States, and at Chalk River, Canada, in the disposal of liquid wastes into the ground; reports from Britain and the United States on the discharge of radioactive wastes into the sea; and a report on air and gas cleaning for nuclear energy processes, from the United States.

International Co-operation. There was unanimous insistence on the need for international conventions, and codes of practice, to govern the industrial and public health aspects of the peaceful uses of atomic energy. The World Health Organization suggested a possible programme of international co-operation and enquiry: 1) the training of public health personnel to meet the problems of the expansion of nuclear technology; 2) the dissemination of public health information on health problems related to radiations; 3) a world-wide scientific study of the somatic effects of low level radiation on humans; and 4) a world-wide scientific study of the radiation induced genetic effects in the human race.

American Medical Women's Association

PRESIDENT'S MESSAGE

IN MY PART OF OUR COUNTRY, November is a month of beautiful, crisp, sunny weather with a blanket of browns, reds, and yellows covering the fields and the lovely hills along the Ohio River. November is not so warm nor so highly colored as October, and each passing day warns us that fall is almost over and winter is almost here. The fall's work is done. The corn has been cut, the apples picked, the field crops harvested, and the gardens have given up the last of their bounty, even to the golden pumpkins. The whole countryside is being put to bed for the winter, by both Mother Nature and her human assistants.

And then, as the sun and the colors fade, comes Thanksgiving, that day on which we pause, as did the early settlers, to praise and give thanks to the God who has bestowed His many blessings on us. Thanksgiving is a wonderful national holiday which overflows, like the heavily-laden festive board, with love, and warmth, and fellowship. It is a good day to think about our many blessings, and to consider our rich heritage. It is a good day to remember how fortunate we are to be women physicians in a free country and to give thought to the inheritance that has been given us by the women physicians and scientists who have preceded us. You and I are adding our bit to this inheritance, and the women physicians of the future will be grateful for our contributions.

It is highly fitting that there should be some tangible evidence of our appreciation of this proud heritage. Soon, this idea will become a reality. This year, the Library Committee of the AMWA is undertaking a drive to raise funds to build a library at the Woman's Medical College of Pennsylvania to house historical data, memorabilia, and the writings of women physicians and scientists. This is not to be just another medical library, but will be a WORLD CENTER TO HONOR THE ACHIEVEMENTS OF WOMEN IN MEDICINE AND SCIENCE. The material housed therein will be made available to all women in medicine and science. The impact of such a center will be felt throughout the world and it will play a vitally important part in the furtherance of women in medicine.

The present plans call for a library costing $175,000. The Library Committee will raise at least $50,000 this year and hopes far to exceed this modest goal. The names of major contributors and those honored by major contributions will be placed on bronze plaques. The names of all contributors and those honored by contributions will be on public display. Here is an opportunity to honor both the living and the dead, to give of money or material to the establishment of a living, growing, useful tribute to those of whom we are proud and for whom we are thankful.

Esther C. Manning

P.S. To obtain copies of "The Menopause," reports of the Seventh Congress of the Medical Women's International Association, Gardone Riviera, Italy, September 15 to 21, 1954, please see advertising page 38.

Branch Thirty-Nine, Boston, invites all women physicians attending the A.M.A. Clinical Meeting to a luncheon on November 30, 1955. Please complete and return the reservation on advertising page 34.

Award Winners

THE AMERICAN MEDICAL WOMEN'S ASSOCIATION announces officially that seven women doctors have each received $100 together with an Award of Achievement Citation for graduating first in their medical school classes.

The seven cash awards were presented at graduation exercises to: Dr. Miriam P. Brehmeyer, Woman's Medical College of Pennsylvania; Dr. Virginia A. Duggins, George Washington University School of Medicine; Dr. Joyce Rich Henrie, University of Utah School of Medicine; Dr. Eleanor Louise Henry, Howard University College of Medicine; Dr. Nancy Conrad Kester, The Bowman Gray School of Medicine of Wake Forest College; Dr. Juanita Brown Rentsch, Medical College of Virginia; and Dr. Carmen I. Rivera-Estrada, University of Puerto Rico School of Medicine.

In addition to these cash awards, Honorable Mention Citations were presented to 47 women in 29 medical schools who were graduated among the first ten of their classes.

This is the third consecutive year in which the

DR. MIRIAM PAULINE BREHMEYER, a native of Philadelphia, graduated in first place in a class of 40 from Woman's Medical College of Pennsylvania. She received her B.S. degree from William Smith College, Geneva, New York, and will intern at Philadelphia General Hospital.

During her undergraduate years, Dr. Brehmeyer achieved an excellent academic record and was prominent in campus activities, including journalism and sports.

In spite of the heavy academic demands during her medical education, she was interested in student affairs. She was elected to Alpha Omega Alpha and graduated with the highest average of her class for all four years.

Dr. Marian Fay, dean of Woman's Medical College said, "Not only was Dr. Brehmeyer excellent in her academic work. Her approach to patients was pleasant, she organized her work efficiently, and managed her busy schedule pleasantly. She will make a good intern and a good physician."

DR. VIRGINIA A. DUGGINS, the number one graduate from George Washington University, had an average of 92.6 for four years of medical study, and was the only woman student in a class of 80.

Dr. Duggins received her B.A. from Sweet Briar College, Virginia, and her M.A. in physiology at the George Washington University. Before taking up her medical studies, she was employed as electroencephalographic technician at the McGuire General Hospital in Richmond, Virginia, and at the

George Washington University Hospital in Washington, D.C. She will intern at Johns Hopkins Hospital. Her specialty preferences are neurology or internal medicine. Her hobbies are tennis, theater, ballet, and playing bridge.

Dr. Duggins is an Associate member of the AMWA. During her undergraduate years, she served as president of the George Washington Junior Branch of the AMWA. She was a member of

1955

American Medical Women's Association has distributed these awards.

In 1955, a total of 329 women were graduated from 69 medical schools in the United States. The American Medical Women's Association was privileged to present cash awards and citations to 54 of these women. Seven were graduated in first place and 47 were graduated from 29 medical schools in the upper 10 of their classes. Two who achieved first place were the only women in the senior classes.

Of the 72 schools invited to participate, 65 responded. Four schools did not have women in the senior classes. These were: Albany, Iowa, Meharry, and Vermont.

Encouraged by the notable scholastic achievement of women graduates, 7 in first place both in 1954 and 1955, the American Medical Women's Association will present the awards and citations again in 1956, $100 cash and a Citation of Achievement to each woman who graduates in first place, and an Honorable Mention Citation to each woman who graduates in the upper ten of her class.

Alpha Omega Alpha, Smith-Reed-Russell, William Beaumont Society, and Kane-King Obstetrical Society. She was given a fellowship by the National Foundation for Infantile Paralysis, summer of 1953, and the Anna Bartsch Scholarship in her junior year.

Dr. Joyce Rich Henrie, one of the two women in a class of 53 students at the University of Utah School of Medicine, finished in first place. During premedical school, she held a high scholastic record, making Phi Beta Kappa. She earned most of her living while attending school. Dr. Henrie holds a B.S. degree in chemistry and a degree in medical technology. She is a member of Alpha Omega Alpha and an Associate member of the AMWA.

"This vivacious, ambitious, intelligent, and attractive young woman is popular with fellow students and is highly regarded by members of the Medical College faculty," according to Dean John Z. Bowers. She is married to John N. Henrie, M.D., presently a Fellow in orthopedic surgery at the Mayo Clinic in Rochester, Minnesota. Dr. Henrie is an accomplished pianist and the happy mother of a 17 month old daughter.

Dr. Eleanor Louise Henry who ranked first in her class of 75 students, 8 of whom were women, at the Howard University College of Medicine, Washington, D. C., was born in the City of New York. She attended Washington Irving High School and Hunter College, where she was elected to Phi Beta Kappa. Dr. Henry was not only first in her class but also won honors in surgery, obstetrics and gynecology, medicine, physiology, and in biochemistry.

She has always taken an active part in student government and has worked as camp counselor and laboratory technician at the Columbia University

College of Physicians and Surgeons. She was a medical extern at St. Elizabeth's Hospital in Washington, D. C. Dr. Henry is an Associate member of the AMWA. She will intern at the Los Angeles County Harbor General Hospital.

Dr. Henry is married and enjoys dressmaking, photography, and baking.

Dr. Nancy Conrad Kester, a native North Carolinian, graduated first in her class of 51 from the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem. Dr. Kester was the only woman in her class. She received her A.B. degree from Duke University and also attended the University of Edinburgh, Edinburgh, Scotland, in the summer of 1949.

She will intern at North Carolina Baptist Hospital. When time permits, her hobbies are traveling, music, and golf.

Dr. Juanita Brown Rentsch, wife of Dr. Samuel B. Rentsch and mother of an eight month old baby girl, graduated at the top of her class of which five were women, from the Medical College of Virginia in Richmond. Dr. Rentsch was born in Connecticut, the daughter of a Congregational minister. She graduated from Lee High School in Lee, Massachusetts, and from the University of Michigan. She will intern at the Waterbury Hospital in Waterbury, Connecticut. Dr. Rentsch is a hiking, camping, and travel enthusiast.

The number one graduate from the University of Puerto Rico School of Medicine was Dr. Carmen Inez Rivera-Estrada. Dr. Estrada holds a certificate in medical technology from the School of Tropical Medicine and has led her class in three of the four years of medical work. She has worked as a medical technician at the Fajardo District Hospital in Puerto Rico, and was selected for an exchange clerkship in medicine at Columbia University College of Physicians and Surgeons as part of an exchange program. "Her work compared very favorably with any of the women at Columbia University," according to Dr. E. Harold Hinman, dean of the Puerto Rico School of Medicine.

Music and sports are the chief extra-curricular interest of this young woman physician who will intern at the Michael Reese Hospital in Chicago.

HONORABLE MENTION CITATIONS WERE PRESENTED TO:

Dr. Maude Diseker, seventh in a class of 80; The Medical College of Alabama

Dr. Marta Ve Everton, fourth in a class of 92; Baylor University College of Medicine

Dr. Marion Elizabeth Weir, fourth,

Dr. Margaret Ann Single, sixth and

Dr. Barbara Ann Terrile, seventh in a class of 76; Boston University School of Medicine

Dr. Naomi Minner Morris, second, and

Dr. Betty Jean Thomas, fourth in a class of 75; University of Colorado Department of Medicine

What the Deans Say
ABOUT THE AMWA SCHOLASTIC AWARDS

Robert C. Lewis, M.D., Dean, University of Colorado Medical Center:

"Thank you for the June 1954 report on the Award of Achievement Citations. I was very glad to have this report. I did not realize that the number of women at the top of their classes would be so great.

"You will be interested to know that next year one of our women students will be first in the graduating class, provided something unexpected does not happen to interfere with her scholastic performance."

V. E. Wilson, M.D., Assistant Dean, University of Kansas Medical Center:

"We deeply appreciate your interest in the women medical students of our school and will be more than happy to co-operate in any way we can."

William S. Middleton, M.D., Dean, The University of Wisconsin Medical School:

"We shall be most happy to co-operate in nominating honor students from among our women."

John McK. Mitchell, M.D., Dean, University of Pennsylvania School of Medicine:

"This will acknowledge with many thanks receipt of the citation for Dr. Eleanor Yeakel. This will be awarded to her in person in ceremonies for the School of Medicine which will follow immediately after the General University Commencement."

(Continued on following page)

Dr. Dorothy Goldman Millon, fifth in a class of 69; The University of Chicago School of Medicine

Dr. Ellen Newman, fourth in a class of 114; Columbia University College of Physicians and Surgeons

Dr. Beverly Calvert Morgan, fifth in the class; Duke University School of Medicine

Dr. Pat Barrow, fifth, and

Dr. Anne Hendrick Gaston, eighth in a class of 69; Emory University School of Medicine

Dr. Marie Dietel, seventh in a class of 110; Georgetown University School of Medicine

Dr. Martha Coles Gordy; Medical College of Georgia.

Dr. Roselyn Elizabeth Payne, seventh, and

Dr. Olive Maude Dickson Gordon, eighth in a class of 75; Howard University School of Medicine

Dr. Mary Betty Stevens, seventh in a class of 73; The Johns Hopkins University School of Medicine

Dr. Shirley L. Kauffman, one of 4 women in a class of 122—graduated in second place; University of Kansas School of Medicine

Dr. Bettina C. Hilman, fourth, and

Dr. Cherie Chachere Long, eighth; Louisiana State University School of Medicine

Dr. Nettie Graham King, fourth in a class of 91; University of Louisville School of Medicine

Dr. Virginia A. Madden, one of three women in a class of 78, graduated in eighth place; Stritch School of Medicine, Loyola University

Dr. Donna Mae Barras, tenth in a class of 102; Marquette University School of Medicine

Dr. Violet Selma Samorodin, second in a class of 100; University of Maryland School of Medicine

Dr. Mary Louise Oman Warner, third in a class of 135; Ohio State University College of Medicine

Dr. Eleanor Hugins Yeakel, fourth in a class of 130; University of Pennsylvania

Dr. Nydia Roas de Jesus, second,

Dr. Amalia Martinez-Pico, seventh, and

Dr. Marta Valcarcel-Teruel, eighth in a class of 42; University of Puerto Rico School of Medicine

Dr. Evelyn Ridenhour Callas, seventh in a class of 66; University of Southern California School of Medicine

Dr. Margaret Bowen DeVore, second in a class of 66; Medical College of South Carolina

Dr. Joan Gretchen Hoshauer, in fourth place; Temple University School of Medicine

Dr. Mary Alice Bone, third in a class of 100; University of Texas Southwestern Medical School

Dr. Eleanor M. Kohn, second,

Dr. Joanna C. Maiden, third,

Dr. Evelyn S. Bouden, fourth,

Dr. Gloria Gallo, fifth,

Dr. Helen Smith, sixth,

Dr. Patricia R. Mansure, seventh,

Dr. Barbara A. Higbie, eighth,

Dr. Gloria M. Miniutti, ninth, and

Dr. Melissa A. Warfield, tenth in a class of 40; Woman's Medical College of Pennsylvania

Dr. Nina Lowy Steg, in upper 8 percent; Washington University School of Medicine

Dr. Virginia Grace Showers; Western Reserve University School of Medicine.

Dr. Elizabeth M. Smithwick, second,

Dr. Anne Marie Travis, ninth, and

Dr. Sonja D. Monson, tenth in a class of 75 of which 7 were women; University of Wisconsin Medical School

WHAT THE DEANS SAY (Continued)

H. Boyd Wylie, M.D., Dean, University of Maryland School of Medicine:

"I am happy to tell you that there was a woman graduate . . . . who placed in the upper ten of the class."

E. Harold Hinman, M.D., Dean, University of Puerto Rico School of Medicine:

"Our school of medicine is in its fifth year of operation and we have from six to nine women in each medical class. In the current graduating class the women have been outstanding.

"As you may know, we have from 15 to 17 percent women in our enrolled student body. This year we anticipate that women may dominate as candidates for various prizes given by the School of Medicine."

Walter A. Bloedorn, M.D., Dean, The George Washington University School of Medicine:

"We have only one girl in our senior class (of 80 students) and we are indeed proud to advise you that she has led her class for the past three years."

Joseph M. Pisani, M.D., Assistant Dean, State University of New York College of Medicine at New York City:

"I am sure that our women medical students have enjoyed receiving your JOURNAL and would like me to express their appreciation to you for the arrangements which were made enabling them to receive the various issues with the compliments of your Association."

John B. Lagen, M.D., Acting Dean, University of California Medical Center:

"May I thank you again for your continued interest in our women students."

Granville A. Bennett, M.D., Dean, University of Illinois College of Medicine:

"Thank you for including the University of Illinois in your search for outstanding women medical students."

Thomas R. Forbes, Assistant Dean, Yale University School of Medicine:

"I must tell you that this school does not give formal grades and does not rank its students.

"On behalf of this School, I should like to thank the American Medical Women's Association for their interest and for the opportunity to make the nomination."

M. E. Lapham, M.D., Dean, Tulane University School of Medicine:

"I regret to advise you that we have no candidate from the 1955 class for the 1955 Scholastic Achievement Awards of the American Medical Women's Association.

"I hope that next year we will be able to present you with the name of a candidate."

A. C. Furstenberg, Dean, University of Michigan Medical School:

"Thank you kindly for bringing this matter to my attention and inviting us to participate in the 1955 Scholastic Achievement Awards."

D. Bailey Calvin, Dean, Student and Curricular Affairs, University of Texas Medical Branch, Galveston:

"I regret sincerely that none of our girls will be eligible for the honorable mention citation.

"We expect to graduate a class of 152 students this coming June; three women students are in the upper ten percent of the class.

"Please let us know if we can be of further assistance."

J. P. Tallman, M.D., Dean, The University of Nebraska College of Medicine:

"(I) appreciate your interest in the women in medicine."

G. B. Robson, M.D., Associate Dean, Stanford University School of Medicine:

"I am very sorry to report that there are no women in the upper ten bracket of our senior class, so unfortunately we will not have any applicants for the award.

"You will note that Stanford does not at present award the M.D. degree until the student has completed a year of internship."

Joseph K. Hill, Ph.D., Assistant to the Dean, State University of New York at Syracuse College of Medicine:

"We shall be very happy to co-operate with you again this year."

Fredrick G. Gillick, M.D., Dean, The Creighton University School of Medicine:

"I am sorry to advise you we do not have a woman graduating this year who ranks among the first ten of the class.

"I believe, however, that we have a very apt candidate coming up for next year who will be one of the first ten of the class."

Robert S. Jason, Dean, Howard University School of Medicine:

"Thank you for the consideration shown to our students."

What the Recipients Say

ABOUT THE AMWA SCHOLASTIC AWARDS

Dr. Virginia A. Duggins: "I have just received your letter and the check awarded to me by the American Medical Women's Association and want to thank you very much. It is a nice thing for the Association to do and I appreciate it.

"My plans for this year are a straight medical internship at Johns Hopkins, and then probably I'll take my three year residency in internal medicine.

"I should like to take this opportunity to tell you how much the girls at George Washington Medical School appreciated being Junior members of the Association. I'm glad to say that we seem to be taking a fair number in each year now, so we had a good-sized group, which wasn't true my Freshman year."

Dr. Nancy C. Kester: "I want to express to you and to the entire American Medical Women's Association my appreciation for the check which I received from you. The money, itself, is a welcome addition to any intern's income. But more important, it is gratifying to have one's scholastic efforts acknowledged. And, furthermore, it increases one's sense of responsibility to follow up scholastic achievement in school with a worth-while contribution to medicine in postgraduate training and practice.

"At present I am interning in pediatrics at the North Carolina Baptist Hospital. I definitely plan to take further training, but at this time my plans for next year are indefinite.

"I want to thank you again for your inspiring award. I hope that I shall always prove worthy of it."

Dr. Miriam P. Brehmeyer: "I want to thank the American Medical Women's Association for the very generous award presented to me upon being graduated from the Woman's Medical College. The gift has been carefully put away and will be used at some future time to further my medical education, probably in graduate school.

"At present I am beginning my internship at the Philadelphia General Hospital and I fear, I must admit, with the enthusiasm of the greenest novice. My choice of specialty has not yet been made. I find myself changing my mind with each new service. The logical answer appears to be general practice. However, I am fully convinced that such is not desirable in a big city.

"My only clear-cut plan is to take a year in pathology at the end of my internship, as an adjunct to whatever specialty I choose."

Violet S. Samorodin: "I wish to express sincere appreciation to the American Medical Women's Association for presenting me with the Citation for Scholastic Achievement."

Juanita Brown Rentsch, M.D.: "The award given me by the American Medical Women's Association is deeply appreciated. This delay in offering my thanks is due to the rather hectic internship combined with the very pleasant experience of motherhood. My husband, who has just entered the Submarine Corps, and I are expecting another baby for New Year's. I plan to continue in pediatrics while he is in the service.

"The gift of one hundred dollars is certainly a great help to us at the present time.

"I hope and pray that I shall be deserving of the honor. Thank you kindly."

Miss Virginia Baxley, Registrar, The Medical College of Alabama:

"We very much appreciate the citation which your organization made to Dr. Maude Diseker for outstanding scholarship in the Medical College of Alabama."

M. E. Carroll, Registrar, The Albany Medical College of Union University:

"We do not have any women in our graduating class. It will be impossible for the Albany Medical College to participate in the Scholastic Achievement Award of the American Medical Women's Association, which I deeply regret."

"Next year there will be some girls in the graduating class, so I shall look forward to hearing from you about May 1956."

Medical Women of the Year

LAST YEAR at the suggestion of Dr. Esther C. Marting, then the President-Elect, the Branches were asked to choose some woman physician in the area for special recognition at the Mid-Year Board Meeting. The response was enthusiastic and those who were present to receive the citations, as well as the pictures and friends of those who could not be there, made the presentation in Atlanta a very pleasant occasion.

It is easy to go along from day to day doing the

JOSEPHINE RENSHAW, M.D., University of Maryland, 1943; Diplomate, American Board of Obstetrics and Gynecology; and Junior Attending Staff, Garfield Hospital.

Dr. Renshaw merits this recognition for her untiring efforts to arouse greater interest among women physicians in more active participation in local and national medical associations, and to improve the relations between the public and the medical profession.

Through her own participation, Dr. Renshaw has demonstrated the possibilities and the results. She has served the AMWA as a member of Legislative and Reference Committees; she has been president, corresponding secretary, and program chairman of Branch One, and served as delegate to Association Meetings.

She achieved the distinction of being the first woman to be chairman of a standing committee of the District of Columbia Medical Society, serving five years on the public relations committee, during three of which she was the chairman. During this period, outstanding programs were initiated, such as the J. B. Nichols Award to the lay individual or organization which made the greatest contribution to the health of the community; an annual dinner for the nurses, secretaries, and other personnel employed by doctors; and a series of TV programs for the public presented in conjunction with the health department.

She has also served her medical society as representative on the health committee of the Community Chest; the Greater Washington Educational Television Association Board, and as chairman of publicity and attendance for the 1954-1955 Scientific Assembly. Dr. Renshaw was the guest speaker for the AMA Public Relations Institute in 1953.

She has been a member of the research committee and the outpatient obstetric committee at Garfield Hospital.

Branch One, Washington, D.C.
ESTHER NATHANSON, M.D., *President*

MARIE ORTMAYER, M.D., Rush Medical College, 1917; Diplomate, American Board of Internal Medicine (Gastroenterology); and Fellow, American College of Physicians, American Gastroenterologic Association, as well as numerous other medical societies.

Dr. Ortmayer was chosen by Branch Two, Chicago, for her distinguished record as a practitioner and teacher of medicine, her research and accomp-

things both professionally and socially which seem important, but it is heartening to find that others are aware of special contributions to the world around us. It is also interesting to the other members of the Association to realize how many fields of medicine and extra-medical activities are entered into by their colleagues.

So much interest was aroused last year that the project was continued. We now proudly present the Medical Women of 1955.

lishments in the field of gastroenterology, and her untiring efforts to teach the younger women physicians the techniques related to her field.

She is chief of gastroenterology and diagnostic urology at Women and Children's Hospital, and consultant in gastroenterology at the Cancer Prevention Center in Chicago. In 1954-1955, Dr. Ortmayer was president of the American Gastroscopic Society.

She has been on the attending staff of Women and Children's Hospital, Department of Medicine, since 1928, and represents the Department of Medicine on the Tumor Board.

Her scientific publications are numerous. She has had several grants to carry on her research; one from the Cancer Committee of the United States Public Health Service was used for a special study with Dr. Marie Connelly on "Colon Tumors." Other publications deal with "gastrointestinal and urological problems in women."

She spent the years 1918 to 1922 in postgraduate training in the Sippy Service at the Presbyterian Hospital in Chicago, and the year 1924-1925 in postgraduate study in Vienna. During this time, she was also medical adviser of women, University of Chicago; instructor, Rush Medical College; and assistant clinical professor of medicine, University of Chicago, Departments of Medicine and Gastroenterology. The "Exhibit in Gastroenterology" by Dr. Schindler, Dr. Ortmayer, and Dr. Renshaw received the Gold Medal awarded by the AMA at the 1936 Annual Meeting.

Dr. Ortmayer was elected to membership in Phi Beta Kappa, Alpha Omega Alpha, and Sigma Xi. Her internship was at Cincinnati General Hospital.

From early childhood, Dr. Ortmayer has lived in Chicago. When she entered the University of Chicago, she considered literature and history her special forte and avoided all scientific subjects. She had always been interested in sports and was proficient in sailing, horseback riding, swimming, and diving. She became interested in physical education in her senior year and elected to take three terms of anatomy, dissecting arm, leg, head and neck, thorax, and abdomen, as she says, "just to learn where the muscles were that I enjoyed using so much for fun." She received her Ph.D. degree from the University of Chicago in 1906 and taught athletics to the women in the University of Chicago from 1906 to 1909. When she decided to study medicine, she had to take the science courses she previously had avoided.

Dr. Ortmayer has been active in the AMWA and has served her Branch as president.

Branch Two, Chicago, Illinois
ELIZABETH R. FISCHER, M.D., *President*

MABEL E. GARDNER, M.D., Middletown, Ohio; University of Cincinnati, 1914; Fellow, American College of Surgeons; and specialty, obstetrics and gynecology.

Dr. Gardner has served her profession, her Association, and her community with untiring devotion. She has been clinical instructor at the University of Cincinnati Medical School; chief of the obstetric staff and instructor of nurses at the Middletown Hospital; has served the Butler County Medical Association as president and secretary; and has been a member of the Board of Health of Middletown.

Dr. Gardner has been indefatigible in her service to the American Medical Women's Association, this year serving as chairman of the Library Fund Committee engaged in a project to raise $50,000 toward the establishment of an American Medical Women's Association Library as a world center for research, study, and information; dedicated to all women in medicine and science everywhere.

She has served the Association as President and was awarded the Elizabeth Blackwell Award of the Association in 1954 for initial work in the establishment of Junior Branches in medical schools. Dr. Gardner was presented the Distinguished Alumni Award by Otterbein College.

Her contributions to civic betterment in her home community are notable. She is a member of the Board of Trustees of Otterbein College, member of the Alumnae Board of the University of Cincinnati Medical School, and president of the Cincinnati Medical Alumnae Association.

Branch Eleven, Southwestern Ohio
GAIL ENGLANDER, M.D., *President*

ELAINE PANDIA RALLI, M.D., New York College of Medicine, 1925; and Diplomate, American Board of Internal Medicine.

Dr. Ralli, a native of New York, is representative of the richness obtained from mixed social cultures. Her mother was of Hungarian descent and her father was born in Greece. Dr. Ralli was the only girl in a family of four children.

Her premedical education was obtained at Horace Mann and Vassar. She interned at New York Infirmary for Women and Children.

During World War I, she was a technician in the Army Medical Corps, but was refused overseas service because her brother was a Captain in the Tank Corps; "no female relatives were allowed overseas."

Her initial training and experience in metabolic diseases was gained in 1926-1927 at the Western Reserve University School of Medicine as a Crile Research Fellow in physiology. In subsequent years, Dr. Ralli was associated with Dr. John Wyckoff on the reorganization of the Third Medical Division and teaching in the Department of Medicine at Bellevue Hospital.

She set up the metabolism clinics in the Department of Medicine and a laboratory for investigating metabolic disorders. In 1930 and 1938 respectively, she was named assistant professor and associate professor of medicine, serving on the staff of Bellevue Hospital where most of her teaching was done. She has been a full visiting physician to Bellevue and Goldwater Memorial Hospitals and attending physician to Lenox Hill and University Hospitals.

She has had two leaves of absence to work on "metabolic changes in the diabetic dog" and work on lipids.

At present she is continuing the investigations of metabolic disturbances and nutritional diseases; and teaching these same subjects at New York College of Medicine.

In 1950, Dr. Ralli initiated the reorganization of the outpatient services of the City Hospitals in order to improve clinic services and decrease the necessity for hospitalizing many of the patients. A program for the use of volunteer workers in the outpatient department was developed and has proved most helpful.

Dr. Ralli was the Woolley Memorial Lecturer at the 1953 AMWA Annual Meeting in New York. She has contributed to the JOURNAL OF THE AMWA and her published papers are many as are the honors bestowed upon her. She is the member of many distinguished societies and organizations.

Her hobbies are, "sailing, Scottish terriers, and painting." Dr. Ralli says, "At the latter I am strictly an amateur but there is nothing amateurish about my Scottish terriers! I have a house in Stamford (Connecticut) where I spend the summer and weekends during the year. As it is an old house and constantly in need of repair, it provides a very good outlet for any excess energy."

Branch Fourteen, New York, New York
ROSA LEE NEMIR, M.D., *President*

HILDA H. KROEGER, M.D., Rush Medical School, 1932; and M.P.H. Hospital Administration, Yale University.

After graduation from Rush Medical School, Dr. Kroeger did graduate study at the University of

Illinois, obtaining an M.S. in physiological chemistry, and an M.P.H. from Yale University in hospital administration. Her specialty is pediatrics. Her practice has included private practice of pediatrics in Tucson, Arizona; public health department, State of Arizona; and hospital administration in New Haven, Connecticut, and Pittsburgh, Pa.

At present, Dr. Kroeger is administrator of the Elizabeth Steel Magee Hospital in Pittsburgh, having taken over these duties November 1, 1951. Her arrival at the hospital and the condemnation of the electric system of the hospital by the city of Pittsburgh were almost simultaneous. New turbines and machinery had to be installed. This meant additional room had to be provided. Like all renovation problems, one thing led to another until an extensive program developed. The final phase of this reconstruction has just been completed. On July 11, 1955, with a conducted tour, open to the public, Magee opened what is undoubtedly the finest labor and delivery room suite in the state and possibly the finest in the country. In addition to this strenuous project, Dr. Kroeger revamped the bookkeeping and accounting systems.

Along with her full-time job, she has found time to serve with the American Committee on Maternal Welfare as a director and at present as chairman of the committee on standards.

Dr. Kroeger is a member of the American Public Health Association, American Hospital Association, American College of Hospital Administrators, Committee on Maternal Welfare, and the American Medical Women's Association.

Most important of all, she is well liked by the entire hospital personnel.

Branch Sixteen, Pittsburgh, Pennsylvania
PEARL G. MCNALL, M.D., *President*

MARY J. ROSS, M.D., Johns Hopkins University School of Medicine, 1907; A.B., Cornell University, with Honorary Key Sigma Xi; A.M., University of Pennsylvania; and Ph.D., Cornell University.

Dr. Ross, granddaughter of Scottish émigrés, born in Quebec, and herself an émigré to the United States, was the daughter of a Presbyterian minister. Her early childhood was spent in Montreal with summer vacations on the family farm near Zorra, "gaining health and endurance, and where I learned co-operation and the meaning of kindness. There was teamwork, and the Bible was part of the daily program."

She came to the United States at the age of 12 where she learned "how cruel children can be." She was a foreigner. As Dr. Ross says, "This helped me to deal with mixed nationalities" when she opened private practice, specializing to some extent in pediatrics, and was told "I would have to go among the foreign population if I expected to earn a living."

The high mortality rate in her city caused her to interest a civic club in starting free baby clinics. Dr. Ross gave her time each morning and was assisted by other willing doctors when "an occasional baby case" would make it impossible for her to be there. This project was taken over by the city health department, and Dr. Ross was appointed supervising physician of all the clinics held at eight different schools, and continued in this capacity until 1947.

Dr. Ross was city physician in Binghamton, the first woman to receive this appointment, and served for 20 years as "Examiner in Lunacy."

Dr. Ross says that her medical career was influenced by the family physician in Canada, "whom we adored," by the family physician in the States, and by Sir William Osler, who "never forgot that

his patient was his first consideration." Dr. Ross enjoyed her three years in medical school, and after going into general practice, appreciated the kind treatment accorded her and realized she had "learned many hard things the easy way."

Dr. Ross was named the Outstanding General Practitioner of 1953 by the Medical Society of the State of New York, the first woman to be so honored by the state medical society.

Branch Eighteen, New York State
MYRTLE WILCOX VINCENT, M.D., *President*

RUTH M. KRAFT, M.D., Vanderbilt Medical School, 1939; B.Sc., Michigan State College, 1927; M.Sc., Ohio State University, 1929; and Ph.D., Ohio State University, 1931.

Dr. Ruth Kraft became a "first lady" very early in life. She says, "I attended a country school until the eighth grade, many times walking five miles to and from school. At 13, I drove a model T Ford and picked up eight small children and conveyed them to and from school." She graduated from Antwerp, Ohio, high school, the only one up to that time who never had to take a final examination. In order to elude that final examination ordeal, the requirements were: never tardy; could not miss more than three days in a semester, and that for sickness only; and an average of 90 in studies and deportment.

In 1931, she was the first woman to receive a Ph.D. degree in medical physiology from the Ohio State University; the first woman physician to serve as camp doctor for the New York Herald Tribune camp at Loomis, New York, in the summer of 1938; the first woman physician to become chief of pediatrics at Grace Hospital, Detroit (1949); first woman doctor in the State of Michigan to be chosen by President Roosevelt for Selective Service; the first woman to be made an honorary registered pharmacist by the Board of Pharmacy of the State of Michigan, in 1951 (a total of 29 persons have received this honor since 1885); and was the first woman treasurer of the Detroit Pediatric Society (1952-1953).

While studying for her B.Sc. degree, Dr. Kraft held down five jobs and made a straight A average. Dr. Kraft adds: "Averaged four hours sleep a night," and, while studying for her M.Sc. degree, majoring in food and nutrition, she was a laboratory technician. She held fellowships while earning her Ph.D., and at Vanderbilt University School of Medicine Department of Biochemistry from 1932 to 1936, where she did research in the oxygen metabolism of luetic and tuberculous tissues. She resigned as instructor in biochemistry at Vanderbilt to finish her medical course.

Dr. Kraft had a rotating internship at Grace Hospital, Detroit; a pediatric internship at Yale University, New Haven Hospital; and was resident in pediatrics at the University of Pennsylvania Hospital, where she was another "first," being the first resident sent from the New Haven Hospital to the University of Pennsylvania Hospital. She entered private practice in 1942. Since then, she has been acting chief of pediatrics, Woman's Hospital; chief of pediatrics, Grace Hospital; and assistant pediatrician, Children's Hospital of Michigan.

Dr. Kraft is a member of the Neonatal Death Study Committee for Wayne County, Michigan; a member of the Loval Child Health Committee; and of the Planned Parenthood Committee. She belongs to many medical societies and is a member of the AMWA. Her honorary societies are: Phi Kappa Phi; Sigma Xi; Phi Lambda Theta; and Wheaton College Honorary Society. She has served a three year term on the board of trustees of the Detroit Club of the Wheaton College Alumni Association; is now a member of the Covenant Baptist Church; "and enjoys doing Christian work." Dr. Kraft speaks frequently to various young peoples' religious and civic groups.

Branch Twenty (Blackwell) Detroit, Michigan
ANN LOGRIPPO, M.D., *President*

ELIZABETH MASON-HOHL, M.D., University of Nebraska College of Medicine, 1915.

Dr. Mason-Hohl was nominated for her "outstanding interest and constant active participation in medical service organizations and her untiring efforts to further women in medicine," in 1954, and renominated in 1955.

She is a member of the staff of the Hollywood Presbyterian and Los Angeles General Hospitals; chief of staff, Good Shepherd Convent

School; and was formerly on the Plaza Community Center staff.

In 1944, she became the co-founder and chief of staff of the Cancer Prevention Society and Clinic. She is also the co-founder and president of the Los Angeles County Physicians Aid Society, and Career Women; and co-founder and past president of the Pan American Medical Women's Alliance. She is a Past President of the American Medical Women's Association.

She is also a member of the American Medical Association and her county and state medical societies; the Hollywood Academy of Medicine; American Geriatrics Society; Public Health League; Assistance League of Los Angeles; and the Barlow Society for the History of Medicine, which she has served as president.

Branch Twenty-Three, Los Angeles, California
ELSIE FERREL, M.D., *President*

NELLIE O. BARSNESS, M.D., Minnesota State University School of Medicine, 1902; and specialty, otolaryngology, and general practice.

Branch Twenty-Six, Minnesota, believes that Dr. Barsness "deserved to be cited for meritorious service to the people of her community for more than fifty years. Her energy and her enthusiasm for her work have been an inspiration to all who have come in contact with her."

Dr. Barsness is a pioneer in many ways. Her family was among the first settlers in Minnesota, and she was one of the first women physicians in her home state.

She started her career by teaching school, and later entered the Minnesota State University School of Medicine, receiving her M.D. degree in 1902. When x-ray machines were introduced, Dr. Barsness lost no time in conquering this new technique and attended the first radiology conference in 1904.

During World War I, women were not accepted in the U.S. Medical Corps. Undaunted by this, Dr. Barsness went to France, where she was appointed ophthalmologist at a hospital at Cempius where gassed soldiers were treated. She was decorated by the French Minister of War for her work done under the most hazardous conditions. She later conducted clinics in Nancy and Rheims.

She returned to Minnesota in 1919, and served as physician for the State Reformatory for Women. She also served for several years as state health director for the Women's Christian Temperance Union. She has worked constantly for improved health conditions through her state, and was on the speakers' bureau of The Ramsey County Medical Society for almost twenty years.

Dr. Barsness served the Association as Regional

Director and her Branch as president, and "has been the backbone of the Branch for many years."

In 1952, Dr. Barsness received the state medical society's Fifty Year Club Certificate for having practiced medicine for more than fifty years.

Dr. Barsness is still active in general practice and in her specialty.

Branch Twenty-Six, Minnesota
DELLA G. DRIPS, M.D., *President*

BERTA M. MEINE, M.D., Woman's Medical College of Pennsylvania, 1911; and Fellow, American Medical Association.

Dr. Meine, director of the clinical laboratory of the Woman's Hospital in Philadelphia, was selected for her services to the Woman's Hospital. "Under great difficulties, she has built a fine medical library; she has played a key part in developing their training program for interns and residents. To medical and surgical staff, Dr. Meine is an unfailing source of advice on difficult cases. Through her interest in

even the smallest details, she has earned a professional reputation founded on reliable, conscientious work. Starting at the beginning of her career with only a cubbyhole and a few test tubes, Dr. Meine has developed at The Woman's Hospital one of the finest clinico-pathologic laboratories in the city of Philadelphia."

Dr. Meine has done graduate study in Germany and Switzerland; she is a member of the Pennsylvania state and Philadelphia county medical societies; and is a member of the American Medical Women's Association and the Philadelphia Branch of the Association.

Dr. Meine served as director of the Broad Street Hospital Laboratory in Philadelphia; she also organized the laboratory of St. Joseph's Hospital in Lancaster, Pennsylvania.

She has served the Woman's Hospital as assistant in laboratory, director of clinical laboratory, chief in pathology, president of the staff, and is at present chief in pathology and director of the clinico-pathologic laboratory; she has been assistant demonstrator in histology, assistant demonstrator in pathology, associate professor of bacteriology, and associate in pathology at Woman's Medical College of Pennsylvania.

In 1912, Dr. Meine was assistant in the biologic department of the H. K. Mulford Company and, in 1916, a research worker in anterior poliomyelitis at the Municipal Hospital of Philadelphia.

Branch Twenty-Eight, Philadelphia
MARY DICKSON VARKER, M.D., *President*

HARRIET E. GILLETTE, M.D., Rush Medical College, 1940; and Diplomate, American Board of Physical Medicine and Rehabilitation.

Dr. Harriet E. Gillette has been named "Medical Woman of the Year" for the second year for "her insight and farsighted approach to the needs of the cerebral palsied and the aged. Her medical clinic instruction and improvement of rehabilitation facilities throughout Georgia are leading to improved therapy and relief of suffering in this group."

Dr. Gillette, the mother of two children, has done general practice and has specialized in pediatrics in Florida and Georgia. For seven years, she has practiced physical medicine and rehabilitation in Atlanta. She is physical medicine consultant, Georgia State Department of Education, Vocational Rehabiltation Division, and Department of Health, Crippled Children's Division; area consultant for the Veterans Administration; Council for the National Research Amputee Program; chairman on physical medicine of the Southern Medical Association; and secretary, southeast section of Congress on Physical Medicine.

Dr. Gillette is a member of many civic societies and organizations and a member of five scientific associations.

Branch Twenty-Nine, Atlanta, Georgia
VERNELLE FOX, M.D., *President*

MARY B. OLNEY, M.D., University of California, 1932; and specialty, pediatrics.

Dr. Olney, "richly deserves the honor of the Woman of the Year for her outstanding medical work and general capability."

Dr. Olney is executive director and originator of a camp established in 1938 and operated by the Diabetic Youth Foundation to provide healthful, normal outdoor camp life for diabetic children. The camp is professionally staffed, has a commissary under the direction of trained dietitians, and provides a full and well-rounded program of handcraft, skills, and recreation.

Dr. Olney does much charitable work. Her selflessness is illustrated by an incident which occurred a few years ago. She owned an old car. A group of

practicing physicians, mostly men, got together and bought her a new car.

She was elected by the senior class in 1953 as the most valuable teacher in the University of California Medical School.

Dr. Olney is a member of the American Heart Association and the American Diabetic Association. She has served on the board of directors of the San Francisco County Medical Society. She works with the Children's Cardiac Clinic and the Children's Diabetic Clinic at the University of California Hospital.

Branch Thirty, Upper California
ROBERTA F. FENLON, M.D., *President*

MARGERY JULINE LORD, M.D., University of Michigan School of Medicine, 1916; and North Carolina School of Public Health.

Few women have contributed as much to the well-being of Asheville as Dr. Lord. She began practice in Asheville in September 1917. Dr. Lord says, "that was an ideal time for a young doctor to begin work." Many of the doctors had been called into military service and within one year she was assisting a prominent surgeon with all his operations; helping a pediatrician with his large practice; giving two hours a day to work in public schools; making professional calls for the Associated Charities sick; and building up a practice of her own.

In 1920, Dr. Lord moved her practice to Montreat. There she became a typical mountain doctor; when her car stuck in the mud, she would finish the trip on foot or muleback to reach some patient in the neighboring hills and coves. Night and day, in all weather, she continued this work for six years.

In 1926, she became school physician in the Asheville city schools in addition to continuing her private practice in Montreat. She studied medical defects in school children which caused them to do poor work, and worked toward educating the parents to see the need for correcting these defects. She also helped to make clinics available for the correction of defects.

Dr. Lord was appointed health officer in 1939, the first woman to become a health officer in North Carolina. Possibly the most outstanding change that has been inspired by Dr. Lord is a change in the atmosphere from one of pure legality and sometimes petty politics to an educational and helpful one. She has made the public her informed partner when emergency health problems had to be met.

Dr. Lord worked for the reorganization of the venereal disease control clinics, was instrumental in establishing the mental hygiene clinic, and has served as president of the mental hygiene board. She was chief of medical service for the Civil Defense in Asheville area during World War II, and was cited for meritorious achievement for a series of training programs.

Dr. Lord has won the admiration and respect of her colleagues, and has the happy faculty of making her co-workers feel they are working with her not for her. She is tireless as a speaker and writer in furthering her program of public health, and conducting classes for senior nurses or dishwashers and food handlers in public eating places.

The combined city-county health department offered her the title of chief public health officer. She refused this new position and plans to retire in 1956 to an attractive "home of her own" where she will enjoy gardening and a sizable collection of records.

Branch Thirty-Two, Western North Carolina
IRMA HENDERSON-SMATHERS, M.D., *President*

HARRIETT HARDY, M.D., Cornell University Medical College, 1932; and Diplomate, National Board of Medical Examiners.

Dr. Hardy has done extensive work in preventive medicine in the field of radioactive materials, lead poisoning, silicosis, asbestosis, and has made the most extensive contributions of any worker in the study of beryllium poisioning, especially the chronic form. As a result of her studies, the maximum allowable concentration of benzene used in industry has been reduced by one-half throughout the U. S.

Dr. Hardy is a recognized authority in her field, not only in this country but in foreign countries. She has the respect and affection of her fellow physicians, men and women, and the complete confidence and devotion of her patients. Her interest goes beyond their illness; to her each one is an individual whose personal welfare is of great importance.

Perhaps the most unusual activity of Dr. Hardy, in a long and impressive list, is that of lecturer in civil engineering at Massachusetts Institute of Technology. She has been a physician at Northfield Seminary, East Northfield, Massachusetts; and at the Franklin County Society for Prevention of Cruelty to Children, where she initiated a pediatric clinic at the Franklin County Hospital in Greenfield. She was college physician and head of the Department of Health Education at Radcliffe College. She has been graduate assistant in medicine, assistant in medicine, assistant physician, and at present is associate physician at Massachusetts General Hospital, as well as chief of the Occupational Medical Clinic. She has been assistant district health officer, Division of Epidemiology, Massachusetts Department of Health; physician, Massachusetts Division of Occupational Hygiene, Department of Labor and Industries; health division leader, Los Alamos Scientific Laboratory of the Atomic Energy Committee; associate physician in charge of occupational medical service, medical department, and assistant medical director in charge of occupational medical service, medical department, Massachusetts Institute of Technology; and assistant in medicine, instructor in industrial hygiene, Department of Industrial Hygiene, School of Public Health, and clinical associate in preventive medicine, Harvard Medical School.

She has served the Atomic Energy Commission as consultant, Division of Biology and Medicine; consultant at the Los Alamos Scientific Laboratory in Los Alamos; and as consultant at the Atomic Research Center in Ames, Iowa.

At present, she is corresponding member of experts on health and safety, International Labor Organization; and of the World Health Organization.

Dr. Hardy is a member of many scientific associations and societies. Her publications are too extensive to summarize.

Branch Thirty-Nine, Boston, Massachusetts
VICTORIA CASS, M.D., *President*

MAY OWEN, M.D., Louisville Medical College, 1921; Graduate Study, Mayo Clinic, Surgical Pathology; and Diplomate, American Board of Pathology, 1937.

Dr. Owen has been active in civic services, serving on the health committee of the Chamber of Commerce; as director of the Y.W.C.A.; worked with the nurse recruitment program; and served on the executive committee, Tarrant County unit, Texas division of the American Cancer Society.

She received an honorary degree as Master of Science from Texas Christian University in 1936; she was the recipient of the Altrusa Civic Award, "First Lady of Fort Worth," in 1948; was the recipient of the "Gold Headed Cane" from the

DR. ELMER HESS, PRESIDENT OF AMA, ATTENDS AMWA COMMITTEE MEETING

Dr. Mary W. Tyler, 1954-1955 chairman of the Public Relations and Publicity Committee of the American Medical Women's Association, called a meeting of her Committee on June 2 during the Annual Meeting at Atlantic City. Mr. Leo E. Brown, director of the Department of Public Relations of the American Medical Association, had accepted an invitation to meet with the Committee.

Dr. Elmer Hess, then President-Elect and now President of the American Medical Association, took time out of his busy convention schedule to accompany Mr. Brown to the AMWA committee meeting. This co-operation is greatly appreciated.

The conference resulted in the following recommendations for the work of this Committee:

1. Stimulate interest in public affairs within the organization.

2. Get more M.D.'s to recognize women physicians as valuable assets in the practice of medicine. This can best be done by urging women to take an active part in county and state medical societies. We were assured that men on public relations committees will listen to a woman's opinion. To do this, women physicians must attend the meetings, get on committees, and assert themselves. Don't be timid about stating an opinion.

3. Dr. Hess frequently appears before both county and state medical societies and, at Mr. Brown's suggestion, agreed to urge them to recognize women as more than dues-paying members, to appoint them to committees, and put them on programs. If the women prove themselves, they may possibly be selected as delegates to state medical societies.

4. It would be desirable for one member of the Public Relations Committee to be appointed to the Executive Committee to understand the broader scopes and policies of the Committee. It is assumed that Mr. Brown referred to the American Medical Association, but this seems to be a pretty broad jump at this stage.

5. Urge Branch groups to put on a membership campaign. Each member should act as a committee of one to assist the presidents. This campaign is already under way.

6. Have the annual Branch meetings just before or after the state medical society meetings. Invite a specialty society to co-operate in getting a speaker.

7. Get to the public the realization of the importance of women in medicine. This could be done by enlisting the co-operation of physicians who write syndicated columns on medicine for the daily newspapers, such as Dr. Theodore Van Dellen (Chicago Tribune-New York News, Inc.), Dr. Walter C. Alvarez (Register and Tribune Syndicate, New York), and Dr. W. W. Bauer, (King Features Syndicate, New York). Mr. Brown assured us that this could in no way be construed as advertising.

8. There is a big need for improvement in family relations. Women physicians are particularly qualified for such work.

9. The American Medical Association may favorably consider a woman's page in its *Journal*.

10. Members of this organization attending the AMA convention should register with their state medical societies (local headquarters).

11. The publicity ball for this organization has already started to roll largely through the efforts of Mrs. Majally. She has received calls from the International News Service for permission to cover this meeting. She also received a call from the National News Service for all news releases and copies of the papers presented.

One more suggestion was made and it is an excellent one. We are cautioned to proceed slowly and not to plan too extensively at the beginning.

(Supplement to report given at Annual Meeting.)

MARY W. TYLER, M.D., *Chairman*
Public Relations and Publicity Committee

Tarrant County Medical Society, a "Doctor's Doctor" honor; also recipient of "Sister Award" from the A.K.K. medical fraternity; and was one of nine Texas women honored at the Mineral Wells "Party of the Year."

Professionally, Dr. Owen is a member of the College of American Pathologists; American Society of Clinical Pathologists; American College of Physicians; World Medical Association; as well as her county and state medical societies, the Southern Medical Association, and the American Medical Association.

She has served as president of the Texas Society of Clinical Pathologists; president of Tarrant County Medical Society; president of the Northwest Texas Medical Society, comprising 15 counties; chairman of the Council on Scientific Work, Texas Medical Association; and chairman of the Tarrant County unit of the American Cancer Society.

Branch Forty, Dallas, Texas
KATHARINE BENNETT, M.D., *President*

AMWA Plan of Work
1955-1956

I. **Industrial Medicine**
The theme for special emphasis in National and Branch Programs.

II. **Scholastic Awards**
To women medical students graduating with exceptional scholastic records.

III. **Scholarship Loans**
An important source of financial assistance for qualified women medical students.

IV. **Opportunities for Medical Women**
Listings of part time and full time positions open to women physicians.

V. **General Fund of the Association**
Contributions needed to establish a reserve fund to be used for general expenses of the Association.

VI. **Organization and Membership**
Need for more members and new Branches urgent.

VII. **American Women's Hospitals and Woman's Medical College of Pennsylvania**
Contributions are solicited to continue and expand the work of these fine organizations.

VIII. **Library Committee and Association Archives**
Plans for a new library at the Woman's Medical College of Pennsylvania are progressing and contributions are needed. This building will house, in addition to the existing collection of medical literature, the archives of the AMWA. Historical material is wanted.

IX. **International Good Will**
To be fostered by hospitality to foreign women students, house staffs, and visitors.

X. **Medical Women of the Year**
An outstanding woman physician is selected by each Branch to be honored at the Mid-Year Board Meeting.

XI. **Essay Contest for Medical Students, Interns, and Residents**
Title: "How the AMWA Can Help Me in the Pursuit of My Career."

XII. **Upholding the Objects of the Association**

Announcing

$100 CASH PRIZE

To the woman medical student, intern or resident who writes the best essay on the subject, *How the American Medical Women's Association Can Help Me in the Pursuit of My Career*

Second Prize—$50 Third Prize—$25

The Object: One of the most important functions of the AMWA is to aid women medical students and to assist women physicians in postgraduate work

We Want to Know: What your problems are
How we can help
Where we succeed and where we fail in our efforts to make the study and practice of medicine easier for you as a young woman physician

Be honest in your evaluation
Criticize where necessary
We can swallow a pill—with or without sugar coating

To Participate: Write an essay of 100 to 500 words on the above subject
Send before April 1, 1956, to
Ruth Hartgraves, M.D.
American Medical Women's Association, Inc.
1790 Broadway, New York 19, N.Y.

Prizes will be awarded in June 1956

RUTH HARTGRAVES, M.D., *Chairman*
Essay Contest

NEWS FROM THE BRANCHES

Branch Three, Maryland

Branch Three is growing. New members are young women, which is a healthy status.

Dr. Virginia Beyer was deceased in 1954. She was associated with the Springfield State Hospital at Sykesville, and a contribution to the American Cancer Society was given in her memory by the local society.

Speakers during the year have included: Dr. Dorothy Donley-Dowd, "Schizophrenia in Childhood"; Dr. Carrie Hearn, "Medical Missionary in India"; Dr. Samuel Asper of Johns Hopkins Hospital, "Newer Aspects of Thyroid, Diagnosis and Treatment"; Dr. Robert Garis, Union Memorial Hospital, "Use of New Drugs in Treating Hypertension"; Dr. John Rehberger, "Role of Tracheotomy and Bronchoscopy in Bulbo-Spinal Polio"; Kyrle Preis, D.D.S., University of Maryland, "Childhood Dental Problems"; Dr. John DeHoff, "Common Household Poisonings"; and Dr. Martin Gorten, University of Maryland, "Rh Pediatric Problems."

MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION

An INTERNATIONAL TOUR is being planned in connection with the Council Meeting of the Medical Women's International Association, to be held in Lucerne, Switzerland, September 21 to 23, 1956. Tentative arrangements are now being made for a Pre-Council Tour to England, Norway, Sweden, Denmark, Finland, West Germany, and perhaps a side trip to Berlin; then through Germany to Lucerne. Points of medical interest will be visited along the way.

If you are interested in a special itinerary, write at once to:

ADA CHREE REID, M.D.
118 Riverside Drive
New York 24, N.Y.

Opportunities for Women in Medicine

GRANTS AND AWARDS

U. S. Government Awards under the Fulbright Act include the following awards for university lecturing and postdoctoral-level research: Austria, Innsbruck—medical sciences in German; Belgium, Brussels—speech therapy for cerebral palsy patients; Denmark, Copenhagen—speech pathology; France, various hospitals—medicine or pharmacy; Germany, Wurzburg — pediatrics, neuropsychology; Iraq, Baghdad—public health and pathology; Netherlands, University of Groningen—cardiology; and Norway, University of Oslo—hematology. For further information write the Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Avenue, Washington 25, D.C.

* * *

The Playtex Park Research Institute, founded four years ago to support pediatric research, has announced a change in policy, whereby it will sponsor on a one to three year basis young investigators whose ideas and programs require financial support. The investigator must have demonstrated an aptitude for research, be associated with a recognized medical institution, and have a proposed program that the board of the institute considers promising. Detailed information as to grants and application forms may be obtained from the Playtex Research Institute, 6415 Empire State Bldg., New York 1.

HOSPITAL ADMINISTRATION

Alfred P. Sloan Foundation, Inc., announces a grant of $750,000 to Cornell University for an Institute of Hospital Administration. The first students will be admitted to the new program beginning September 1956. The number of applicants admitted each year will be about a dozen. The grant includes a generous provision for fellowships.

FELLOWSHIPS

A fellowship program to stimulate interest in research among medical school students has been announced by the Tobacco Industry Research Committee. The fellowships are intended for regular or graduate students interested in devoting their summer or "off-term" time to basic researchs in experimental or clinical sciences. Each fellowship will provide $500 for the term. According to Dr. Clarence Cook Little, director of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, who is chairman of the Scientific Advisory Board, which determines the research policy and program for the Tobacco Industry Research Committee, and scientific director of the committee, no limitations of any kind will be placed on the field of research that may be selected within the areas designated.

PRIZES

The American College of Gastroenterology, in co-operation with the Ames Company of Elkhart, Indiana, have established the Ames Award contest for the best papers in gastroenterology. For Fellows or residents, the first prize is $250 and the second prize $50.

There are awards for the same amounts for first or second year interns. The papers must represent original work, and must not have been previously published. The contents of the papers can be clinical or basic science. For further information, write to the American College of Gastroenterology, 35 West 60th St. New York 23.

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News of Women in Medicine

ILLINOIS. The following have recently participated in the series, "Your Doctor speaks," over FM Station WFJL, under the auspices of the educational committee of the Illinois State Medical Society: DR. LOUISE TAVS, clinical assistant professor of dermatology, University of Illinois College of Medicine, "Care of the Skin"; and DR. BEULAH BOSSELMAN, clinical associate professor of psychiatry, University of Illinois College of Medicine, "Neurotic Anxiety."

KANSAS. The search for strains of live virus suitable for use in polio vaccine will be continued at the University of Kansas Medical Center under a grant of $105,116 from the National Foundation for Infantile Paralysis. Dr. Herbert A. Wenner, research professor of pediatrics, will direct the research. DR. JACQUELINE BAUMEISTER, instructor in pediatrics, will assist him.

NEW YORK. DR. ADA CHREE REID attended the meeting of the Directing Council of the Pan American Sanitary Organization, which was held in Washington, D. C., September 9 to 21, 1955, as representative of the Medical Women's International Association.

Dr. Reid, a member of the speaker's bureau of the New York Heart Association, broadcast on the subject, "Can Rheumatic Fever and Rheumatic Heart Disease Be Prevented?" on Station WNYC on September 7, 1955.

The New York State Academy of General Practice held its annual meeting in October at the Hotel Statler in New York. "The Care of the Child with Congenital Heart Disease" was presented by DR. MARY A. ENGLE, assistant professor of pediatrics at Cornell University Medical College. DR. FLANDARS DUNBAR told about "Psychosomatic Aspects of the Aging Process."

NORTH CAROLINA. Proof that even a small medical group can make a large contribution to its profession comes from Haywood County Medical Society where 25 physicians maintain a scholarship program to provide medically trained personnel for their county.

Each member pays $20 in addition to his county society dues, and the amount of the scholarship depends on the applicant's needs. Scholarships are available to Haywood county residents who are interested in becoming nurses, lab and x-ray technicians, physio- and occupational therapists, medical librarians or administrators. DR. DORIS HAMMETT, public relations chairman of the county society, says it has not only offered help where needed and provided trained personnel where needed, but it has also produced a keen personal interest on the part of society members in the work of each scholarship student.

TENNESSEE. DR. MARTHA A. LOVING of Memphis is an instructor in obstetrics and gynecology at the University of Tennessee Medical School, and she practices her specialty in Memphis.

General

DR. ESTHER C. MARTING, as President of the American Medical Women's Association, was elected June 24, 1955, to the Board of Corporators of the Woman's Medical College of Pennsylvania, succeeding DR. CAMILLE MERMOD.

The Corporation expressed its appreciation to Dr. Mermod "for her services as a Corporator during her term of office as President of the American Medical Women's Association."

Many women physicians are becoming active in the American Physicians' Art Association. DR. BEATRICE RAYMOND of Chicago, Illinois, is president-elect, and DR. ALMA DEA MORANI of Philadelphia is second vice-president of the association. At the annual art exhibit, DR. ELIZABETH KLEINMAN of Jamaica Plain, Massachusetts, received honorable mention for an oil landscape; DR. HELEN RYAN of Philadelphia was awarded first prize for sculpture; Dr. Raymond, first prize for ceramic painting; and DR. MAVIS KAUFMAN of New York, second prize for an oil portrait.

Postgraduate courses for physicians are being sponsored by St. Michael's Hospital, Newark, and the New Jersey State Department of Health, with the co-operation of the Medical Society of New Jersey, Essex County Medical Society, and the New Jersey Heart Association. One of the lecturers is DR. JANET S. BALDWIN, assistant professor of pediatrics at the New York University College of Medicine.

International

Canada. DR. MARGARET A. KENNARD of Vancouver spoke on "The Factor of Aggression as Related to the Electroencephalogram" at the annual convention of the Society of Biological Psychiatry, held in Chicago, Illinois.

Great Britain. Dr. Margaret Middleton has been appointed part-time clinical teacher in child health at the University of Sheffield.

The section on child health of the British Medical Association heard Dr. Mary Crosse of Birmingham open the discussion on the problems of the neonatal period.

Prof. Winifred Cullis, emeritus professor of physiology of London University and for many years professor of physiology at the London School of Medicine, received the honorary LL.D. of Birmingham University on July 2, 1955. It was at Birmingham that she spent her childhood and schooldays. One month earlier, on June 2, Professor Cullis celebrated her eightieth birthday, and all her friends will wish to congratulate her. Besides her academic distinctions, Professor Cullis has many outside interests: she is a past president of the International Federation of University Women and deputy chairman of the English-Speaking Union. During World War II, she was head of the women's section of the British Information Services in the United States (1941-1943), and later she toured the Middle and Far East, at the Government's request, to describe the part British women were playing in the war.

The National Birthday Trust Fund has made a grant of £1,200 to Dr. Hilda Roberts, lecturer in anesthesia at the London Postgraduate Medical School, to enable her to do full-time research. The work will be carried out in the Research Unit of Obstetric Analgesia at Hammersmith Hospital.

Dr. Sheila M. Anderson of London discussed "Pediatric Anesthesia" at a meeting of the Illinois-Indiana-Iowa-Michigan-Minnesota and Wisconsin Anesthesiologists held in Chicago.

Chile. Dra. Tegualda Ponce, president-elect of the Pan-American Medical Women's Alliance, is now at the Margaret Hague Hospital in Jersey City, New Jersey, doing postgraduate work in obstetrics and gynecology. She and her husband spent several months in Europe recently.

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Designed to hold up to 12 issues of the Journal, a volume file of blue trimmed in gray, lettered in 16 karat gold, has been prepared. It is sturdy and attractive for desk or library shelf. Current issues are protected, yet are readily accessible. See advertising page 40 for further information and order blank.

THESE WERE THE FIRST

Dr. M. Jean Gale, graduate of the Woman's Medical College of Pennsylvania in 1889, was the first woman oculist to practice in Denver, Colorado. Dr. Gale died in 1949 at the age of 80 years.

Dr. Elizabeth McLaughry, graduate in 1894 of the Woman's Medical College of Pennsylvania, was founder of Overlook Sanitarium, at New Castle, Pennsylvania, and in 1950 was honored on her eightieth birthday.

Dr. Jessie Louise Herrick was the first woman to serve as president of the Denton County, Texas, Medical Association, in 1935, and organized the health service department of the Texas State College for women. Dr. Herrick was the first woman to be city physician of Elmira, New York, where she organized its first visiting nurses' association.

Dr. Marjorie Reed, graduate of the Woman's Medical College of Pennsylvania in 1923, was the first woman intern at the Wilkes-Barre General Hospital, Wilkes-Barre, Pennsylvania.

Dr. Mary Margaret Nicholson, graduate in 1925 of George Washington School of Medicine, was the first woman to receive the annual award of merit of the George Washington University Medical Society, in recognition of her contributions to heart diseases of children. Dr. Nicholson, clinical professor of pediatrics at George Washington Medical School in 1950, was the first woman to be named to the AMA's section on pediatrics. She was past president of the District Medical Society, Washington.

Sister Mary Benedict (formerly Florence Young) graduate of the Woman's Medical College of Pennsylvania in 1946, is a member of the Catholic Medical Mission Sisters, and one of five nun surgeons now in Asia. She is raising funds to enlarge the Holy Family Hospital in Docca, Pakistan, where she has spent five years and operated in a jungle hospital in Garow Hills, serving the East Bengal Province. Sister Mary Benedict interned at the Misericordia Hospital, Philadelphia, and become first assistant to the chief surgeon there.

Dr. Mildred Schaffhausen, of the University of Minnesota, in 1952 received the first award of merit given by the American Medical Women's Association, for the highest scholastic average for four years medical training of any woman medical student in American medical schools for 1949 to 1952.

—Elizabeth Bass, M.D.

Book Notices

EDITOR'S NOTE: These reviews represent the individual opinions of the reviewers and not necessarily those of the members of the Editorial Board of the JOURNAL.

FLUIDS AND ELECTROLYTES IN PRACTICE. By Harry Statland, M.D., Associate in Medicine, University of Kansas School of Medicine; Consultant in Medicine, Veterans' Administration Hospital, Kansas City, Missouri. Pp. 195, illustrated. Price $5.00. J. B. Lippincott Company, Philadelphia, 1954.

It is becoming increasingly evident that any major disease process will inevitably result in fluid and electrolyte imbalance, if unchecked. At the same time, the subject of fluid and electrolyte balance has become increasingly complex. This volume presents a simplified, easy to understand, yet comprehensive review of the subject, which will meet the needs of most practicing physicians, whether their work is primarily with hospitalized patients or outpatients.

The first half of the book is devoted to the presentation of basic chemistry and physiology. Of particular interest are the chapters on fluid movement, the major disturbances of volume, concentration, acid-base balance, edema, major depletions, and the prevention of imbalance in the postoperative patient.

The second half deals with specific disease entities in which fluid and electrolyte balance are important. These are heart disease, kidney disease, diabetic acidosis, problems of the newborn, infantile diarrhea, burns, cirrhotic ascites, and toxemia of pregnancy. Case presentations with details of actual management are very helpful in the application of the theory presented in the first half of the book, and in demonstrating the application of these principles in therapy.

This volume will be of particular value to practicing physicians who have not had an opportunity to review the basic sciences; but medical students, interns, residents, internists, and surgeons will find it a valuable guide to problems encountered in any type of practice.

—Joseph O. Splendido, M.D.

HUMAN LIMBS AND THEIR SUBSTITUTES. Edited by Paul E. Klopsteg, Ph.D., Sc.D., Associate Director, National Science Foundation; and Philip D. Wilson, M.D., Surgeon-in-Chief, Hospital for Special Surgery, New York. Prepared under the Sponsorship of the Advisory Committee on Artificial Limbs, National Academy of Sciences, and National Research Council. Pp. 793, illustrated. Price $12.00. McGraw-Hill Book Company, New York, 1954.

Rehabilitation after amputation of a limb calls for the combined team efforts of surgeon, physiotherapist, psychiatrist, and limb maker. This excellent book succeeds in showing the role of each partner in this endeavor, as well as his problems.

The first portion deals with basically surgical and psychiatric problems, and includes, as does the rest of the book, the latest research done under the auspices of the advisory committee on artificial limbs of the National Academy of Sciences and National Research Council.

In the second part the upper limb is discussed. Here requirements and necessities are outlined in detail. Substitutions are then described, including their advantages, limitations, and disadvantages. The lower limb is described in the third part, with discussion of the changing concepts in the design of prostheses.

While part four has been directed primarily to the limb maker and is somewhat technical, it contains much of benefit to the surgeon, especially reference to the suction socket type of suspension. The last part deals with the post amputation phase and the training that goes into making an amputee into an individual with a disability to which he has adapted.

—Moses Rabson, M.D.

CURRENT CONCEPTS IN DIGITALIS THERAPY. By Bernard Lown, M.D., Formerly Assistant in Medicine, Peter Bent Brigham Hospital; and Samuel A. Levine, M.D., Clinical Professor of Medicine, Harvard Medical School; Physician, Peter Bent Brigham Hospital. Pp. 152, illustrated. Price $3.50. Little, Brown and Company, Boston, 1954.

This is a brief, concise, clearly written monograph of value to every physician who prescribes digitalis. It emphasizes properly the toxic effects of digitalis and summarizes excellently the literature pertaining to the relations between electrolytes, especially potassium, and digitalis. The complication, paroxysmal atrial tachycardia with block, is described in detail and is well illustrated. A useful and practical test is outlined with acetyl strophanthidin as an aid in determining digitalis tolerance.

Contrasting with these beautifully written sections of current importance is the lack of sufficient attention to the clinical use of digitalis in heart failure. The student, in reading this book, would find it somewhat difficult to know how to select a digitalizing agent. The table on digitalizing agents includes gitalin, but the corresponding text lacks adequate discussion of the drug. This compendium also fails to include an illustrated discussion on the use of digitalis in the treatment of auricular flutter as well as other special indications for digitalis. It is important, too, that contraindications to the use of digitalis are missing.

The shortcomings actually concern, and therefore weaken, only one of the seven chapters. As a whole, the book is easily read, offers a great deal, and is highly recommended.

—William I. Gefter, M.D.

THE BIOCHEMISTRY OF NUCLEIC ACIDS. By J. N. Davidson, M.D., The University of Glasgow. Pp. 200, illustrated. Price $2.25. Second Edition. John Wiley and Sons, Inc., New York, 1954.

For biologists who desire more knowledge of the chemistry of the cell and for chemists who wish to

learn more of cellular metabolism, the second edition of this excellent little book should be a worthy library addition. The author has made many important contributions to this area of knowledge, hence the book may be regarded as authoritative.

The applications of new tools in the elucidation of the composition of many cellular constituents are described. These descriptions plus the several illustrations, including electron photomicrographs, provide adequate background for readers not actively engaged in work in this field.

The introduction contains a short historical summary and includes a bibliography of 24 recent review articles on the general subject. Chapter headings include: the hydrolysis products of the nucleic acids (with structural formulas); chromatography applied to the nucleic acids (including a discussion of ion exchange chromatography and ionophoresis as well as paper chromatography); the structure and properties of the polynucleotides (with emphasis on findings since the first edition of the book in 1950); nucleases and related enzymes; ultraviolet absorption; histochemical tests for nucleic acids; chemical methods for nucleic acid estimation; the nucleic acid content of cells; nucleic acid in the cell cytoplasm; the cell nucleus (much new material is presented); the metabolism of nucleic acids (one of the shorter and weaker chapters); the biosynthesis of nucleic acids; the biological activity of the nucleic acids; and the nucleic acids in microorganisms. References are provided at the end of each chapter.

—Robert C. Baldridge, Ph.D.

HISTOLOGY. By Arthur Worth Ham, M.B., F.R.S.C., Professor of Anatomy, in charge of Histology in the Faculties of Medicine and Dentistry, University of Toronto, Toronto, Canada. Second Edition. Pp. 866, with 518 figure numbers, including 7 plates in color. Price $10.00. J. B. Lippincott Company, Philadelphia, 1953.

The plan of the second edition of this textbook of histology is unchanged, being divided into four parts: what histology is and how it is studied; cells, intercellular substances and fluids; the four primary tissues and their subdivisions; and the histology of the systems. Changes have been made primarily in the enlargement of sections dealing with the cell and nervous tissue, although addition of recent advances have been made throughout the text.

The first as well as this edition of this text represents an improved approach for the student faced for the first time with the problem of learning the structure of the body. It is unique and surely impressive for the student to have available this simplified orientation in methods of studying tissue, in artefacts, in function, and in disease. The chapters on cartilage and bone in which the author includes his personal contributions to the medical literature deserve special mention.

Another improvement over other texts lies in the use, to a large extent, of photomicrographs of notable quality, with drawings for additional clarification of structure.

While this general treatment of the subject, consisting of integrated histology, physiology, and pathology, represents a great advance for the first year medical student, it is evident that the book is deficient in that it lacks detail concerning histology as well as integrated subjects. Moreover, an enlargement of the index would serve to make more accessible the material in the text. While it is not felt that this book can replace others for reference purposes, it is heartily recommended for students.

—Sophie Spitz, M.D.

PERIPHERAL VASCULAR DISEASES. By Edgar V. Allen, B.S., M.A., M.D., M.S., F.A.C.P., Section of Medicine, Mayo Clinic; Nelson W. Barker, B.A., M.D., M.S., F.A.C.P., Section of Medicine, Mayo Clinic; and Edgar A. Hines, Jr., B.S., M.A., M.D., M.S., Section of Medicine, Mayo Clinic. With Associates in the Mayo Clinic and the Mayo Foundation. Second Edition. Pp. 825, with 316 illustrations, 7 in color. Price $13.00. W. B. Saunders Company, Philadelphia, 1955

The second edition of this book on vascular diseases is to be welcomed. Many changes have taken place in concepts and treatment of these diseases in the nine years since the first edition was published. This book has a wealth of investigative and clinical information of value both to the specialist in diseases of the arteries, veins, and lymphatics, and to the physician who sees diseases of these structures occasionally. Students in particular will find this book of great value because of its systematic approach to the diagnosis and treatment of these patients.

Although this edition is slightly smaller than the first, the surgical section has been expanded. This was wise in view of the increasing importance of surgical procedures in peripheral vascular disease. Vascular grafting is opening a new field in the management of severe occlusive arterial disease. A number of new subjects have been included, such as aortography, coarctation of the aorta, and some of the newer surgical procedures that have been introduced since 1946. Time has also allowed a better evaluation of former therapeutic measures.

Although the term "peripheral" is used in the title, the entire vascular system is discussed, as is proper in such a book. The profession owes the authors and their associates a debt for undertaking the sifting of the enormous literature on this subject, and recording their own experiences. This book should be of value to all physicians.

—Meyer Naide, M.D.

EMOTIONS AND BODILY CHANGES, A Survey of Literature on Psychosomatic Interrelationships 1910-1953. By Flanders Dunbar, M.D., Med. Sc.D., Ph.D. Fourth Edition. Pp. 1,214. Price $15.00. Columbia University Press, New York, 1954.

This book represents "an attempt to bring together in some sort of perspective the research material which has combined to develop those concepts in medicine which are the necessary foundation for further research in the sphere of psychosomatic medicine." A look will reveal what a colossal task this has been.

The work is divided into three parts followed by an extensive bibliography. Part One deals with the problems of getting oriented to the psychosomatic concept; it also deals with history, definition, methods, and techniques of research. Part Two considers organs and organ systems and diseases thereof, from the psychosomatic point of view. Part Three considers questions of therapeutics as influenced by psychosomatic research, and gives many examples of the ways in which therapeutics has improved and become more effective since the emotional factors in disease have been given due attention.

No firm advance in any science may be made through research, unless the researcher first knows what has already been accomplished in that field. This book shows what has been accomplished in research in the field of psychosomatic medicine. In spite of the magnitude of this research, one gets a glimpse of the large amount of study still needed before we can know much about the interrelations of the organic and functional aspects of disease. There is probably no such thing as a completely psychic illness, or a completely physical one.

—Harrison F. English, M.D.

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EDITORIAL FORECAST

December 1955

Dr. Phyllis C. Walker is Guest Editor for the special Branch Thirty-Eight, Long Beach, California, issue of the JOURNAL, to appear in December. A variety of articles will be presented, with a history of the Branch, and other material about medical women in Long Beach.

"Surgical Management of Congenital Lesions of Small Intestine: Review of 142 Lesions," by Laurel A. Weibel, M.D.

"Modified Techniques of Inhalant Anesthesia for Infants," by Dorothy A. De Groat, M.D., F.A.C.A.

"Hypoplastic Anemia Following Chronic Exposure to Kerosene," by DeLores E. Johnson, M.D.

"Hemoperitoneum from Ruptured Corpus Luteum Cyst Associated with Unruptured Tubal Pregnancy," by Mary F. Callaghan, M.D.

"Cystic Hygroma of Neck," by Sybil D. Haire, M.D.

"Exceptional Children's Foundation School," by Geraldine L. Dickinson, M.D.

As is customary, the December number will include the Index for the JOURNAL for the current year, 1955.

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Article III, Section 1a. **Active Members** "shall be members of a Branch, if any local Branch exists; if not, they may be Members-at-large."

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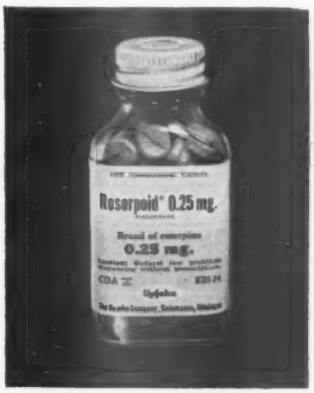

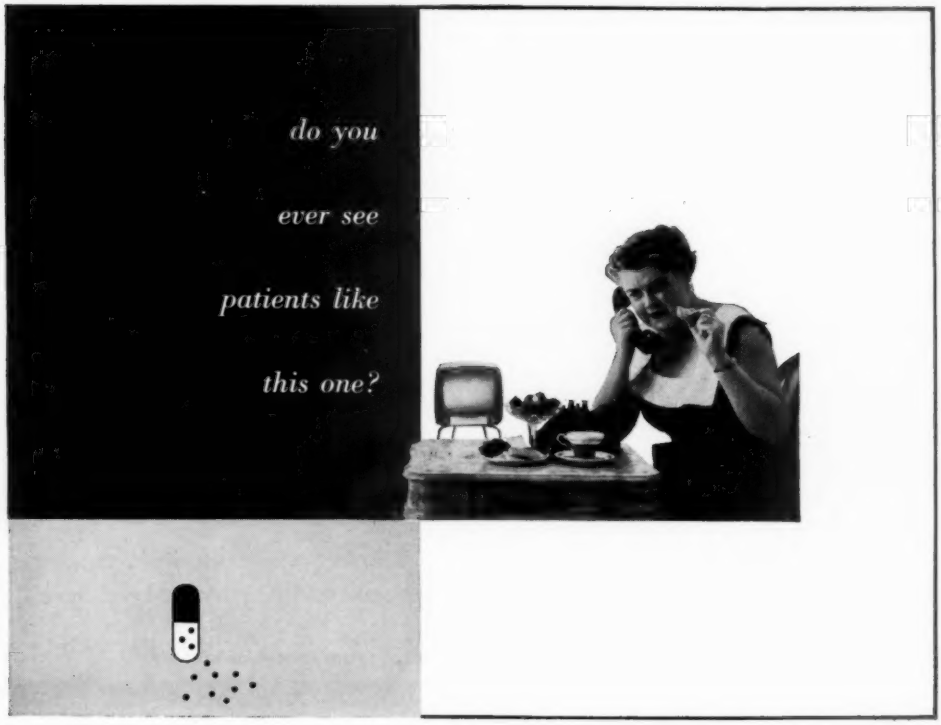

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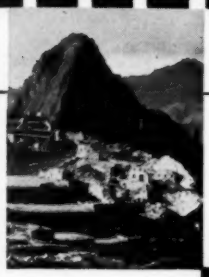

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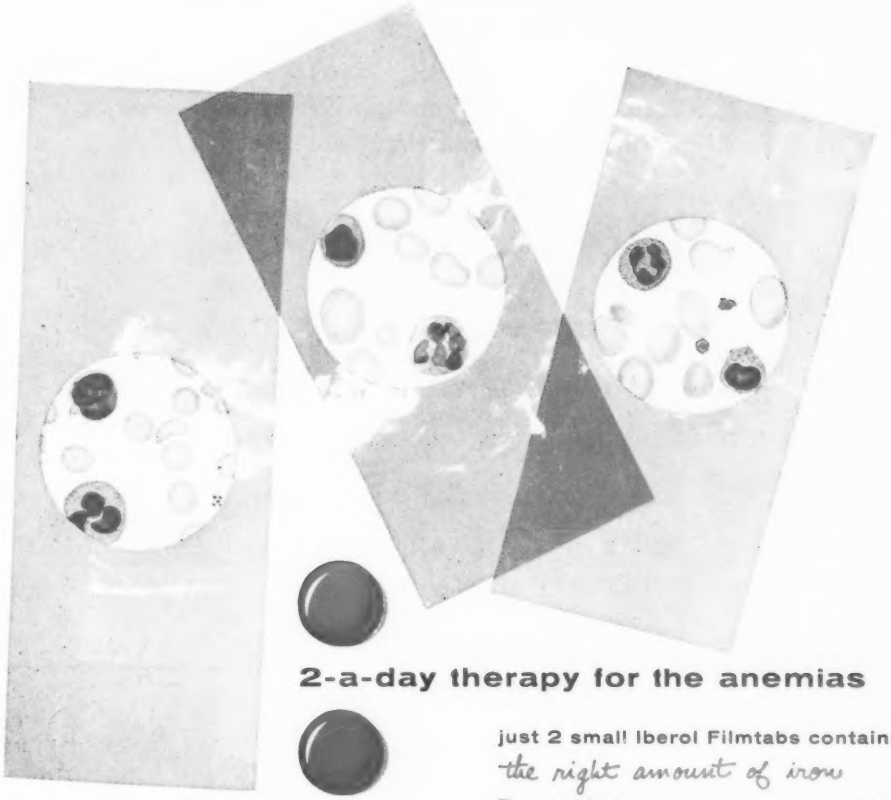

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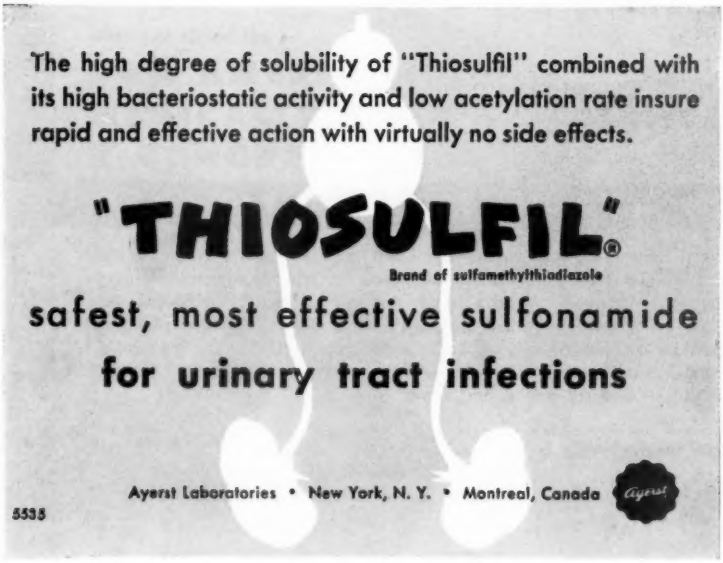
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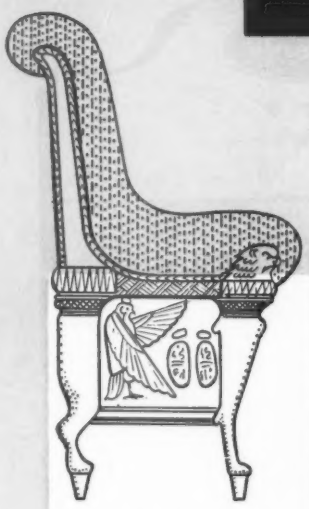

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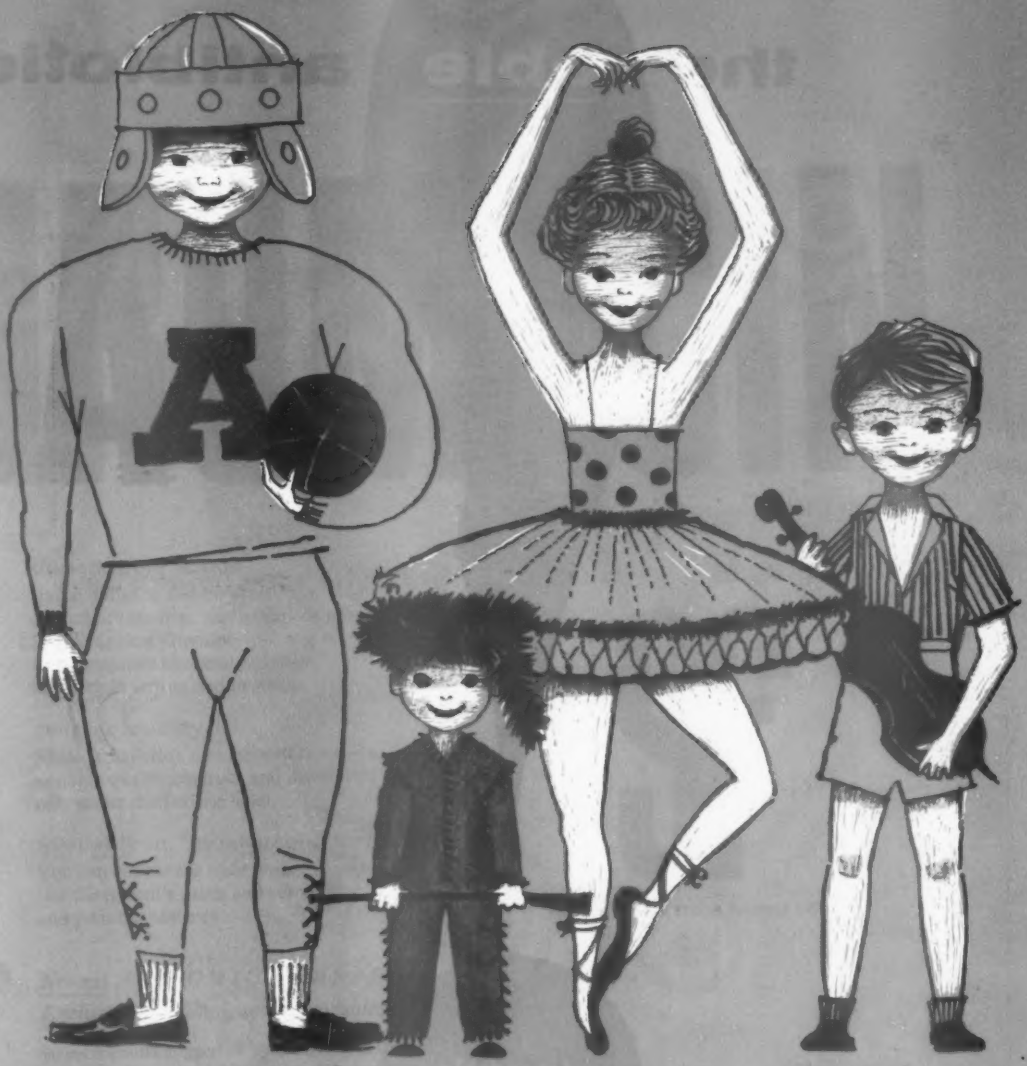

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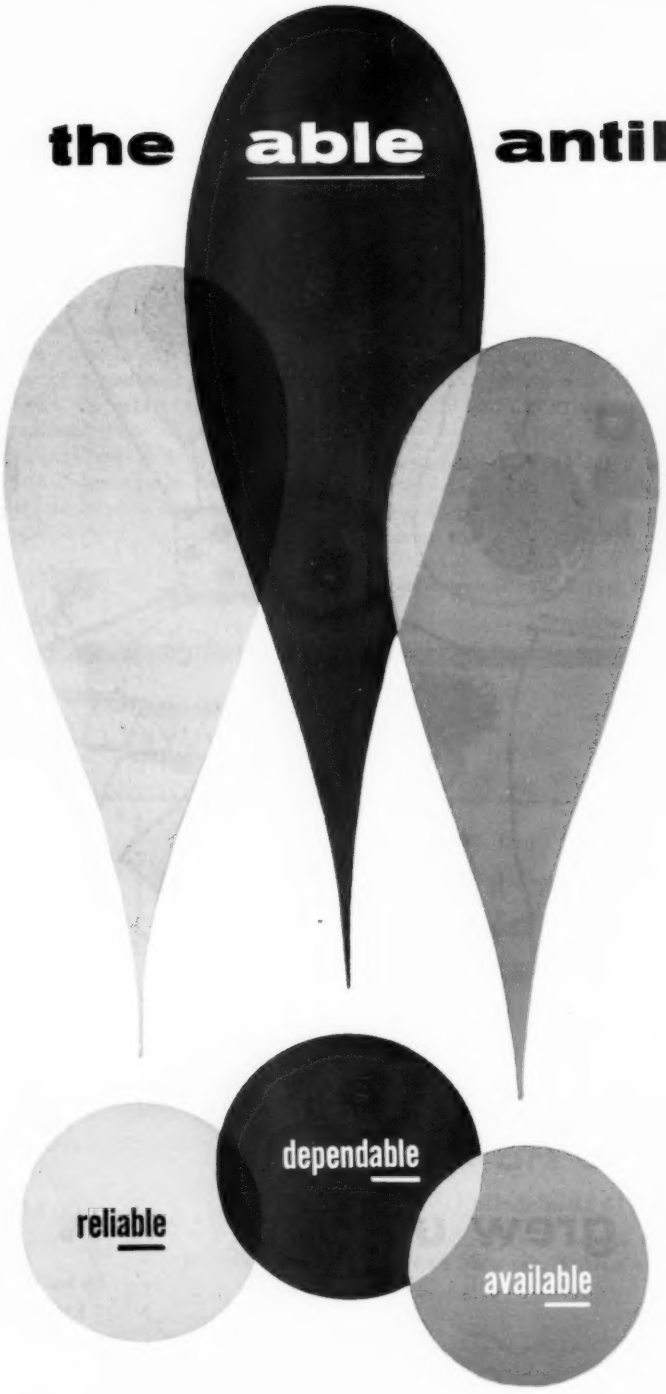
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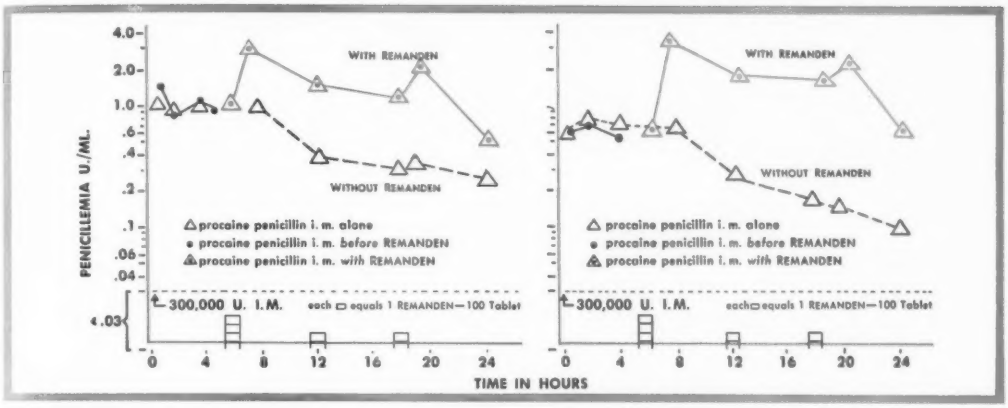

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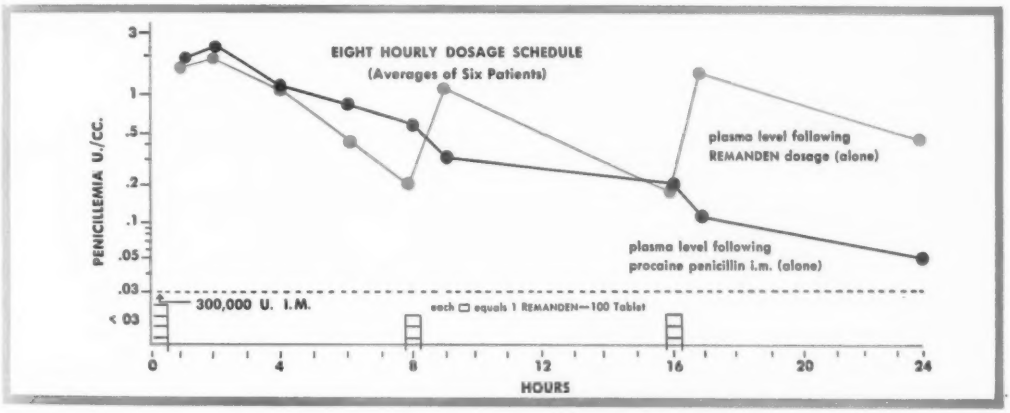

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